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THE MEDICAL JOURNAL OF AUSTRALIA

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An Address.[1]

By R. J. VERCO,

Retiring President of the South Australian Branch of the British Medical Association.

THE plans of the National Health and Medical Research Council and of the Federal Council of the British Medical Association in Australia have the common ideal of a complete medical service. The British Medical Association scheme is not, to my knowledge, worked out to anything like the same degree as regards practical and particularly financial detail as is the other. The outstanding features of the National Health and Medical Research Council's plan are its insistence upon a whole-time salaried service for its medical personnel, and its application to every man, woman and child in Australia, unless they themselves choose otherwise and pay for medical attention themselves.

I cannot persuade myself that the National Health and Medical Research Council's plan is a practical one under Australia's present social conditions. The application of such a plan in its present form will, I believe, as far as its medical service is concerned, and quite apart from consideration of its hospital and public health aspects, which I do not claim to be able to judge, lead to wholesale discontent and resentment and within a short time to chaos and confusion. It seems to me to deprive the public of a considerable portion of the facilities and conveniences that they have always known and appreciated, and to be prepared to substitute for this a complete civil service with all its weaknesses and inadequacies. I feel that no government should be asked to shoulder the responsibility of imposing on the people such a scheme as this, without being warned of the contestable nature of the advice received with reference to this plan for a general medical service for Australia.

I do not in any way belittle the immense amount of honest hard work and thought that has been put into the plan. What I find impossible to accept in it results, in my opinion, from the fact that few if any of its originators or elaborators have had any prolonged personal experience of general medical practice. Otherwise I am unable to account for the plan's fantastic disregard for the psychological prejudices and predilections of both the presumptive medical personnel and the members of the public who are to participate. I shall try to show wherein I consider the plan impracticable and to suggest what alterations could be applied to it to lessen that same impracticability. I deny any adherence to the belief that medical service in Australia should remain static; but very careful consideration of the immediate and remote effects of such a revolutionary plan as this is necessary.

Discussion of a general medical service for Australia lamentably tends to centre round general principles. The practicability of a scheme depends chiefly on the application of its ultimate details. It is my intention to deal with details and not with general principles.

The impracticability of the National Health and Medical Research Council's plan results chiefly from its insistence upon a whole-time salaried service and on those things whose inclusion depends on the necessity to implement this central and initial proviso. Whole-time salaried service demands a minimum of office supervision, and simplifies what office work is needed. I consider that the price the scheme has to pay for this advantage is too great in respect to the disadvantages that arise from it.

Whole-time salaried medical service offers free and equal treatment for all. To a large section of the public it offers a type of treatment which will cause resentment and discontent.

Whole-time salaried medical service offers complete freedom of choice of doctor, except as limited by the question of distance, but not the accompanying freedom of choice of the type of service and its location, which are at present the major factors in deciding the choice of a doctor, and it threatens to limit the continuity of that choice owing

[1] Read at the annual meeting of the South Australian Branch of the British Medical Association on June 24, 1943.

to movement of medical personnel on account of periodic promotions.

Whole-time salaried medical service no doubt has been favoured by the planners in contrast to a "payment per service" system, because it enables the exact cost of payments to medical personnel to be estimated annually. It obviously gives the funds available protection from inroads due to excessive service. It just as obviously itself opens the way to under-treatment. From a purely health point of view, the disadvantage here more than cancels the advantage.

There is no way in which a doctor working on a whole-time salaried basis can also carry on private practice and it would obviously be impossible in a one-man country town. Therefore such a service at once splits the medical profession into two watertight compartments—those within and those without its framework. The point overlooked is this: under present conditions combined contract and private practice convey an advantage to the contract practice patient. The doctor's private practice provides the requisite economic competition necessary to keep his professional knowledge at the highest pitch he is able to command, and the contract practice patient obviously reaps the benefit of this effort.

The chief objection to whole-time salaried medical service, and to my mind an insoluble problem and impassable barrier, is the impossibility of evenly dividing the amount of work done in relation to equal as well as unequal levels of remuneration to the medical personnel. Wherever two or more medical officers work in the same locality, this is bound to be a fruitful source of friction and discontent. The objection certainly cannot be met by the allotment of set hours of work. The need for continuity of supervision of patients makes this a fantastic dream to all of us, except those who have spent their lives in office and administrative positions. Under present conditions some of us see a great many more patients in a day than others. No objection is raised, because the busier earn a correspondingly greater income. Under a whole-time salaried service, the harder the doctor works in comparison with his colleagues on equal salary, the greater will be his dissatisfaction and sense of injustice. He will have an excessive number of patients because of his own skill, patience, good temper and willingness to sacrifice his own leisure and comfort to the needs and demands of his clients. Does anyone believe that he will be willing to endure this, and that these good and desirable qualities will not undergo at least partial eclipse as time goes on?

There is, of course, a solution, but a solution not possible under the National Health and Medical Research Council's plan. The solution lies in *per capita* payments for general practitioner medical service, with an agreed maximum panel, which gives the hard worker a corresponding reward for his skill and industry. This, of course, at once limits to some extent that complete freedom of choice which protagonists of the Council's plan praise with little discrimination and less realism regarding its true value and possible repercussions.

Give the patient the right of complete freedom of choice of doctor under a whole-time salaried system, and there will be endless trouble, owing to patients' going here, there and everywhere for diagnosis and treatment, both in the course of one illness and in separate illnesses. This is a state of affairs unsatisfactory and time-wasting from the doctor's viewpoint, and at least in a proportion of cases, unwise and dangerous for the patient. It would destroy continuity of control of the patient and upset the much desired family practitioner basis of service. I admit that this appears a weak argument, because the same thing can and does happen under our present conditions; it is, however, controlled partly by medical etiquette, and partly by the fact that the paying patient chooses a doctor whom he can trust, not only for medical attention, but also for the cost of his services.

Midwifery is, and in my opinion always will be, an integral part of general practice. Herein lies another obstacle to a whole-time salaried system. Midwifery is time-consuming and sleep destroying; it is prone to upset all one's other work because of its unpredictable time incidence during working hours. At present midwifery is unevenly distributed amongst any aggregation of medical men. Some do not want it, and refuse it, or limit it by increased fees. Others desire it and lay themselves out to obtain it. Usually, when natural aptitude and experience stamp a doctor as a reliable obstetrician, this work multiplies for him. Patients come from all over the country and from other practices. Patients insist on free choice of doctor for their midwifery, more than in any other phase of our work. We accept more than an equal share of this arduous work and console ourselves with the increased income, because we believe in loyalty to old patients, and because we believe it to be a moral obligation and a service to Australia. Does anyone believe that aging doctors, or any other for that matter, will put up willingly with this extra and unequal work under a whole-time salaried system?

Two remedies are possible theoretically: (i) payment for midwifery on a "per service" basis from a special pool; (ii) the complete removal of midwifery from general practice, to be done by specialists. I think that the latter is not a practicable solution for the following reasons: (i) The general public would not submit to it. (ii) There are not enough specialist obstetricians. (iii) The necessary centralization in hospital could not be managed. (iv) If it could be achieved in metropolitan areas, it could not be applied to country centres.

Much the same considerations apply to surgery in general practice. The problem cannot be settled by taking surgery out of general practice, because it would take years to accumulate sufficient trained surgical specialists to cope with the total volume of surgical treatment, much of which is now done by general practitioners.

Undoubtedly, as time goes on, surgery will pass into the hands of those with special post-graduate training for the work, and the absence of the gain factor under a whole-time salaried system conceivably might facilitate the move. However, we have to deal with the present, not the future, and with the question of what satisfactory system is possible for the general practitioner doing surgical work under a whole-time salaried system. Fee per service payments from a pool for accredited general practitioner surgeons may offer a solution for the *interim* conditions.

In any case, as soon as surgery is removed from general practice, responsibility is taken from the shoulders of the general practitioner, and he begins to fall short of complete medical mental development. Remove enough of his responsibilities, and you will inevitably produce an inferior type of practitioner. I believe that a great deal of routine surgical work is within the capability of experienced general practitioners, and that if they fall somewhat short in technical brilliance, the patient receives a counterbalancing benefit by his continued association with the same doctor.

The point which I am trying to bring out is that the Council's scheme, by its insistence on a whole-time salaried system of service and renumeration as a *sine qua non*, immediately produces enough anomalies and difficulties to frustrate its smooth and satisfactory working—and that alone is a major factor in its impracticability. Unless there are greater flexibility and variability in its initial suggestions for type of service and remuneration, I consider the plan foredoomed to failure.

At least three types of service and remuneration are possible: (i) whole-time salaried service, (ii) per service payments, (iii) *per capita* payments. I believe that all three methods could be incorporated in the scheme with incalculable benefit to all concerned, provided the methods were allotted in the correct directions.

In metropolitan centres and in equivalent centres in the country, *per capita* payments offer overwhelming advantages for general practitioner services. Loose-thinking protagonists of the Council's plan object that to ask a doctor to contract to see a patient when required for 2½d. a week is debasing. This seems to me a particularly trashy argument. In any case, the fee does not have to be 2½d. a week unless that is a fair and just price to

offer, and the whole-time salary offered is just as likely to work out at 2½d. or even less, when divided by the number of people in each group of the population for which each whole-time salaried service officer is responsible. Are lodge doctors at present debased creatures? On this absurd line of argument one could claim that all such contracts as well as insurance are debasing.

On the other hand, with certain safeguards as to zoning of country areas from which patients in each locality could be drawn, a whole-time salaried service could work quite smoothly in sparsely settled areas, and in quite a number of one-man towns. In fact, a portion of our members working in one-man country towns appear willing to accept this form of service.

A whole-time salaried system is quite suitable for laboratory workers, who can easily have set hours of work arranged.

Midwifery, surgery, specialist services, such as consultant and radiological services, easily fit into a fee per service system and hardly need any safeguards against over-service. If these three types of service were incorporated within the scheme, that fact would automatically iron out many of the difficulties I can see ahead. The three types would provide the "cushioning" for the early years of the plan, and the position would in time gradually clarify itself by the gradual levelling of the community and the increased standard of the service given.

If you object that three types of service and remuneration are impossible in the same scheme, I refer you to New Zealand, where conditions and problems are more like our own than anywhere else in the world. Here you will find the three systems and the plan working, possibly not completely satisfactorily, but at least working—which is more than I would dare to hope for the National Health and Medical Research Council's plan in its present form. Directly dependent upon the initial stipulation of the whole-time salaried service for the plan, follows the necessity to divide the medical profession into grades and to make provision for a system of promotions. This, of course, is copied from other civil service departments; but it is one thing to award promotions in the offices where employees work under the eye of their seniors, and where the quality and extent of their work can quite easily be observed and gauged, and quite another matter where each man's work is a separate show and a service complete in itself. Is promotion to depend on length of service? Is it to depend on the favour of seniors? Is it to depend on local popularity? This may result from lack of strength of mind, from guile or from a *laissez-faire* attitude, just as easily as from the simple performance of satisfactory medical work.

Promotion may entail frequent changes of location of personnel and may satisfy neither the medical practitioner nor the public. At present medical men are apt to stay in one locality, either in cities or in the country, for many years, sometimes for the whole of their career, with considerable benefit to all concerned.

Can safeguards against nepotism and political favour be devised? The planners of the scheme appear to have had some misgivings themselves on the subject of promotions, and have offered an escape valve for dissatisfaction. They lay down the right of any member of the personnel to appeal against any promotion. There is no need to set out the consequences of this generous offer.

The National Health and Medical Research Council's plan states that all young doctors after general hospital experience will be allotted to A and B class one-man stations. The welfare of both medical men and patients would be far better served if those ex-hospital officers went in the first place, for some months at least, as assistants to older practitioners in fairly large practices.

It may appear to laymen, perhaps, that, having been given hospital experience, these young men are armed at all points for the care of patients and for the fight against disease. Actually this is not so; hospital experience differs considerably from general practice. It is proposed to send young men to perhaps isolated districts, where they will tackle everything that comes along without help or guidance from others. Anyone who realizes the value of experience in medical practice will view such procedures dubiously. It takes a good "all-rounder" to run a one-man country practice successfully.

There may be disparity between the number of one-man areas and the number of recent graduates requiring posts. Will the residents of these centres be content with a constantly changing inexperienced personnel?

The plan states that the term of duty in A and B class centres should be reasonably short, whatever that may indicate exactly. Can the necessary number of locations for promotion be guaranteed? If not, what procedure is to be followed? Are these men to vegetate in these stations on the same salary until death amongst the higher ranks allows the whole procession to move forward a few paces? Their problem will, of course, be the problem of all ranks in the service, as far as this aspect of the question is concerned.

I believe the elaboration of the National Health and Medical Research Council's plan to be an honest and industrious attempt to give the Government what it has asked for, and I believe that it has proved at least a valuable basis for discussion. Its advocates praise its comprehensiveness. If it is to be suddenly applied in its entirety, it will entail the expenditure of a large amount of money. I think it would be wise first to make use of the services and institutional units which we already have, and which are already working, and add to them as occasion and opportunity arise. The expenditure of large sums of money in all directions is somewhat hazardous, and later it may be found that less need have been spent, and that what was used could have been better allocated. Where are all these millions to come from? Is a general medical service to be given priority over all other social reconstructions?

Does no one visualize hard times financially after this war? Surely the outlook of a primary producer people, numbering only seven millions, in a universally impoverished post-war world, would suggest to any Australian government the virtue of considering whether the cloth at its disposal will be adequate for the coat which takes its fancy. "Look at Russia!" cry the enthusiasts. Yes, look at Russia, honestly and realistically, and see what the Russian people have endured for years and years in the direction of an atrociously low standard of living. Are Australians prepared to accept anything similar for eventual benefits?

We cannot copy the systems in use in older European countries, where a large proportion of the population lives a hand-to-mouth existence, and where incomes are far below the level of Australian standards. We need to provide the best possible service as economically as possible, with a clear conception of what the public has been accustomed to. Simply to reduce everyone to the lowest common denominator of medical service will not work here.

Conclusion.

Much that I have said may be labelled destructive criticism. It is not written in that spirit. I have endeavoured to remove the dead wood and stumbling blocks from the scheme.

The service in operation in New Zealand includes the flexibility regarding varying types of service and remuneration which I have already advocated for incorporation in the National Health and Medical Research Council's plans. The New Zealand plans merit investigation, if only because they are actually working amid a population very similar in its conditions and requirements to our own.

National health insurance has only a limited field. It neither applies to the bulk of the population, nor provides a complete service for those to whom it does apply. Any attempt to include personal contributions from its participators and compulsion can be expected to arouse considerable antagonism from the working class. In any case, it is in no way equivalent to a general medical service.

THE USE OF SULPHONAMIDES FOR SUPPRESSION OF BACTERIAL GROWTH IN STORED BLOOD.

By H. L. JENSEN,
Macleay Bacteriologist, Linnean Society of New South Wales.

(From the Department of Bacteriology, University of Sydney.[1])

WHEN human blood is collected on a large scale for transfusion purposes, the danger of occasional contamination with microorganisms from extraneous sources, besides the possibility of bacteriæmia in the donors, can never be altogether eliminated. If the contaminating bacteria or other organisms are able to grow in blood kept at low temperature, they may, even if non-pathogenic, cause harmful changes, such as hæmolysis or production of pyrogenic substances, during the storage of the blood. Therefore the addition of some bactericidal or bacteriostatic agent to the blood has repeatedly been suggested. Novak[(2)] studied three species of bacteria, which grew vigorously in ordinary blood at 4° to 6° C., but were almost completely suppressed for twelve days by the addition of sulphanilamide (0·1%) or sulphapyridine (0·02%); various other antiseptics proved more or less ineffective. Hunwicke[(3)] found that the growth of various pure as well as mixed cultures of bacteria in blood kept at 2° C. as a rule was prevented for periods up to seven weeks by sulphanilamide (0·02% to 0·08%); in one instance, horse blood containing a 0·02% concentration of sulphanilamide and mixed infection showed considerable development of bacteria in forty-five days. It appears a weakness in these experiments that the plate counts from the blood were carried out at 37° C., a temperature too high for growth of many psychrophilic bacteria likely to develop in refrigerated blood. MacKay[(1)] arrived at the conclusion that no compound, including a 0·02% concentration of sulphanilamide, would give complete security against growth of bacteria, especially *Pseudomonas pyocyanea*, in serum kept at room temperature; her experiments on whole blood were few and not wholly conclusive, because the test organisms largely failed to grow at refrigerator temperature. Novak,[(4)] on the other hand, stated that three sulphonamide derivatives in concentration as low as 0·02% invariably had not only a bacteriostatic but also a bactericidal effect in plasma stored at room as well as refrigerator temperature. Since certain bacteria seemed capable of developing some degree of tolerance towards sulphonamides, Novak recommended the addition of sodium sulphathiazole in a higher concentration, 0·2%, to stored blood plasma as a routine measure against infection. If this procedure was adopted in principle, whether for serum or for whole blood, it would obviously be desirable to use the lowest possible concentrations of sulphonamides in order to avoid dangers to recipients already under sulphonamide therapy.

Experimental Investigation.

Since bacteria capable of rapid growth at low temperature obviously represent the greatest danger to stored blood, it is important to select such bacteria as test organisms for experiments on this aspect of blood preservation. Some experiments based on this principle have therefore been carried out. The following bacteria were tested for ability to grow in refrigerated blood containing various bacteriostatic agents: (i) *Bacterium S*, a non-spore-forming, Gram-negative, actively motile rod producing whitish growth on agar; received from Lieutenant W. S. Sutton, who isolated it from chilled meat; (ii) *Bacterium R.I*, a non-spore-forming, Gram-negative, non-motile rod producing slimy growth on agar, light yellow at 5° C., pale greenish at 30° C.; isolated from soil kept at 5° C.; (iii) *Bacterium B*, a non-spore-forming, Gram-negative, non-motile rod producing ochre-yellow growth on agar; isolated from blood exposed to contamination at 5° C.; (iv) *Corynebacterium R.IV*, a non-spore-forming, Gram-positive, non-motile rod of irregular cell shape, producing white growth on agar; isolated from soil kept at 5° C.; (v) *Pseudomonas fluorescens*.

All these bacteria grew vigorously in broth at 5° C.; the first three grew also in blood, in which they sooner or later produced a dark purplish (eventually almost black) colour, probably due to methæmoglobin formation; *Bacterium S* sometimes showed this effect after four days, even with a very small inoculum. The bacteria did not appear to cause hæmolysis. A spore-forming bacillus was also tested, but was found to die out rapidly in blood without any antiseptic solution (see Novak[(4)]). The various bacteria were sown into five-millilitre portions of freshly taken human blood containing sodium citrate (0·55%) and glucose (0·56%). Duplicate cultures of each organism were kept in a refrigerator at 4° to 6° C.; at intervals, 0·1-millilitre samples of blood were withdrawn, and plate counts were made (if necessary, after appropriate dilution) on nutrient agar after incubation for four days at 28° to 30° C., which was close to the optimum temperature for all the test organisms. The agar medium contained 0·05 milligramme per millilitre of *p*-aminobenzoic acid to offset the effect of any sulphonamide carried over with the blood. The inoculum for the blood was taken from young (mostly twenty-four hour) broth cultures diluted to such a degree as to provide some 10 to 100 viable cells per millilitre of blood. Sterile 0·85% saline solution containing 0·1% horse serum was used as diluent.

A preliminary experiment showed that the growth of *Bacterium R.I* and *Bacterium B*, from inocula of 47 and 15 cells per millilitre respectively, was almost or completely checked for ten days by a 0·19% concentration of sulphanilamide and a 0·02% concentration of sulphadiazine (these were approximately the highest concentrations that could be used without causing hæmolysis). *Bacterium B* even appeared to be killed (see Novak[(4)]). In control blood, *Bacterium B* reached numbers of about 1,000,000 and *Bacterium R.I* more than 1,000,000,000 cells per millilitre. Two mercurial antiseptics, namely, sodium ethylmercurithiosalicylate ("Merthiolate") diluted 1/100,000, and phenylmercuric nitrate ("Merfenil") diluted 1/50,000, did not reduce the multiplication of the two bacteria by more than about one-half. This agrees with the results of Novak,[(4)] who found that even a concentration of 0·02% "Merthiolate" failed to stop bacterial growth in whole blood.

In the first main experiment all five bacteria were grown in blood with 0·1% and 0·05% concentrations of sulphanilamide. The results (Table I) show that the rapidly growing *Bacterium S* is only slightly retarded by a 0·1% concentration of sulphanilamide, and this also seems to permit a slight growth of *Bacterium B* in the early stages of the experiment: a 0·05% concentration of sulphanilamide fails to check the growth of both organisms as well as the more slowly growing diphtheroid.

The two most resistant bacteria, *Bacterium S* and *Bacterium B*, were tested in blood with 0·2%, 0·1% and 0·05% concentrations of sodium sulphathiazole, and the test with *Bacterium B* towards sulphanilamide was repeated. As shown in Table II, sulphathiazole suppresses both bacteria almost completely; only the smallest dose permits a relatively slight multiplication of *Bacterium S* after twelve days. *Bacterium B* seems to have grown more slowly in this than in the previous experiment, especially in the presence of a 0·05% concentration of sulphanilamide. This may possibly be due to variations in the concentration of naturally occurring substances inhibitory to bacteria in the blood of individual donors.

The test was repeated with all five bacteria in blood with a 0·05% concentration of sodium sulphathiazole. The data in Table III show that only *Bacterium R.I* made a significant but greatly retarded growth, and this from an inoculum which by a miscalculation was unduly heavy. In a renewed test, the same bacterium produced no growth from a small inoculum (eight cells per millilitre) in blood containing a 0·05% concentration of

[1] Published with the permission of the Council of the Linnean Society of New South Wales.

TABLE I.[1]

Series.	Number of Days' Incubation.	Organism.				
		S.	*R.I.*	*B.*	*R.IV.*	*Pseudomonas fluorescens.*
Inoculum.	0	22	8	15	95	17
Control.	4	>100,000	3,400	1,680	220	20
	8	5,800 million.	530 million.	2·4 million.	150	400
	12	4,200 million.	650 million.	510 million.	6,800	30,000
Sulphanilamide (0·1%)	4	>10,000	30	470	150	40
	8	>1 million.	10	(<1,000)	90	30
	12	>1,000 million.	30	(<100)	250	10
Sulphanilamide (0·05%)	4	>20,000	20	1,220	180	30
	8	740 million.	20	66,000	210	20
	12	5,500 million.	10	>200 million.	>10,000	10

[1] The figures indicate the numbers of bacteria per millilitre of blood; only one of the duplicates in each series is given.

TABLE II.[1]

Series.	Inoculum.	Incubation Period.		
		3 days.	7 days.	12 days.
Bacterium S, Control ..	14	148,000	1,020 million.	4,800 million.
Sulphathiazole 0·2% ..		70	10	(0)
Sulphathiazole 0·1% ..		50	40	100
Sulphathiazole 0·05% ..		90	70	3,000
Bacterium B, Control ..	21	200	(<100,000)	76 million
Sulphathiazole 0·2% ..		(0)	(0)	(0)
Sulphathiazole 0·1% ..		20	(0)	10
Sulphathiazole 0·05% ..		70	(0)	(0)
Sulphanilamide 0·1% ..		130	(0)	(0)
Sulphanilamide 0·05% ..		20	90	>20,000

[1] The figures indicate the numbers of bacteria per millilitre of blood.

sodium sulphathiazole; but it produced a normal growth (> 1,000,000,000 cells per millilitre) in control blood after twelve days.

As additional tests, several samples of blood were exposed to chance infection by being poured into unsterilized test tubes which were left open in the refrigerator. Irregular but sometimes vigorous growth took place in the control samples, but blood containing a 0·05% concentration of sulphanilamide or sulphathiazole produced only a few organisms after ten to twelve days.

Some tests were also made on the importance of fungi as potential contaminants in blood. A species of *Mucor*, probably *Mucor racemosus*, isolated from soil, grew rapidly in control blood at 4° to 6° C., producing a voluminous, cotton-like mycelium and dark colour. This fungus also grew, although more slowly, in blood containing sulphanilamide and sodium sulphathiazole even in concentrations of 0·2%. In the presence of a 0·05% concentration of sodium sulphathiazole even a single spore seemed able to induce growth, which became plainly visible after twelve or thirteen days and quite heavy after twenty days. Although fungi have not commonly been incriminated as contaminants in blood, their universal distribution in nature, together with the existence of psychrophilic, sulphonamide-tolerant species, such as the *Mucor* encountered here, emphasizes the necessity of strict aseptic precautions in the collection of blood, even if a bacteriostatic agent is used.

Summary and Conclusions.

The following conclusions may be drawn from the experiments.

1. Certain saprophytic bacteria develop so rapidly in normal blood at refrigerator temperature (4° to 6° C.) that more than 1,000,000,000 cells per millilitre of blood may be produced within ten days from inocula of less than 100 cells. Considerable multiplication may take place before there is any visible change in the appearance of the blood. *Pseudomonas fluorescens*, which is a dangerous contaminant in serum (see MacKay[3]), appears to grow only feebly in whole blood.

2. Mercurial antiseptics are almost useless as preservatives in whole blood. Sulphanilamide and sodium sulphathiazole in concentrations of 0·05% to 0·2% have a strong bacteriostatic effect; some bacteria can multiply quite strongly in the presence of a 0·05% concentration of sulphanilamide, but are almost completely suppressed by the same concentration of sulphathiazole. Certain fungi are more resistant to sulphonamides, and seem to represent dangerous potential contaminants.

3. Although the claim of Novak[4] that a 0·05% concentration of various sulphonamides is almost constantly bactericidal appears too optimistic (and certainly is so in whole blood), there can be no doubt about the general bacteriostatic properties of the sulphonamides, and especially sulphathiazole, within the longest time (ten days) that blood is usually stored for transfusion. The addition of a 0·05% concentration of sodium sulphathiazole to the blood would therefore seem to be a valuable safeguard against deterioration during storage, provided that the blood is at the worst only lightly contaminated. Some growth may result from heavier infection (400 to 500 cells per millilitre), which is comparable to the inocula

TABLE III.[1]

Series.	Number of Days' Incubation.	Organism.				
		S.	*R.I.*	*B.*	*R.IV.*	*Pseudomonas fluorescens.*
Inoculum.	0	26	400	84	74	78
Control.	3	2,000	5,060	220	60	70
	7	>2 million.	>1,000 million.	57,000	70	120
	12	>1,000 million.	1,330 million.	7·9 million.	140	170
Sulphathiazole (0·05%)	3	30	2,600	160	50	100
	7	10	80,000	120	60	120
	12	20	44,000	10	20	100

[1] The figures indicate the numbers of bacteria per millilitre of blood.

generally used by Novak;[4] therefore, and because psychrophilic, sulphonamide-tolerant organisms actually do occur, strictly aseptic collection of the blood is indicated in all circumstances.

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(3) M. Novak: "Use of Bacteriostatic Drugs in Preservation of Blood for Transfusion", *Proceedings of the Society for Experimental Biology and Medical Science*, Volume XLI, 1939, page 210.

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Addendum.

Reissmann (*Klinische Wochenschrift*, Volume XXI, 1942, page 127; abstracted in *Chemical Abstracts*, Volume XXXVII, Number 12, June 20, 1943) has reported that rivanol (2-5-diamino-7-ethoxy-acridine) in a 1/50,000 concentration is superior to several other antiseptics, including various sulphonamides, for blood preservation. Some tests carried out in this laboratory showed that the said concentration of rivanol did indeed stop bacterial growth in blood, but had also a tendency to cause hæmolysis. Its use in preference to sodium sulphathiazole is therefore hardly to be advocated.

Reports of Cases.

A CASE OF APPENDICITIS WITH SHOULDER-TOP PAIN.

By RICHARD T. KENNEDY,
Gundagai, New South Wales.

THE following case is reported mainly for two reasons: firstly, for the light it may throw on the causation of shoulder-top pain with appendicitis, and secondly, because of the rarity of such an association.

Cope[1] makes the following statement: "I can only find two or three references to such cases in Continental literature and I have myself only known of two cases in which shoulder pain occurred."

Mastin[2] writes: "In 1923 my attention was first called to a case of appendicitis in which pain was referred to the region of the shoulder and clavicle. The second case was eleven years later. Recently 485 questionnaires were sent out relative to the subject; 351 replies were received, among which three instances were reported. A complete review of American and foreign literature from 1920 to 1935 revealed six additional cases, bring the total to eleven."

Clinical Record.

W.T.J., a well-built male patient, aged forty-seven years, came to me on March 23, 1943, complaining of pain in the right hypochondrium of six weeks' duration. He stated that six weeks previously he had been droving sheep in the mountains when he was rather suddenly and simultaneously stricken with severe pain "in the hollow on top of the right shoulder" and an equally severe pain "under the right ribs in front". As a result of the combined pain he was bent forward and over to the right for four days while continuing his droving. The onset of pain was accompanied by complete loss of appetite and by nausea; but no actual vomiting occurred. If he ate a meal, he felt "as though his belly were all drawn in to the navel". The pain in the shoulder was accurately located by the patient as being in the triangle formed by the clavicle in front, the upper edge of the trapezius muscle posteriorly and the root of the neck medially. This shoulder pain was severe for a fortnight, and then it eased up. The pain in the hypochondrium remained. There had been no disability on moving the shoulder, and though he searched he could not find a sore spot on the shoulder to press upon. He did notice that if he pressed on the area of abdominal pain the shoulder pain became worse. Despite his pain and illness he continued his work in the mountains right up to the time of the consultation, six weeks after the onset, fortifying himself with wine instead of food. The only previous illness he had ever suffered since childhood was a typical attack of gout in one great toe two years before, for which I had treated him.

On examination, the patient was seen to be a tall, muscular man. His wonted high colour had faded to a sickly pallor. His weight had been reduced by one stone in six weeks. There was some facial rosacea of recent origin. Blood pressure readings were normal. The temperature was 99° F. The teeth were good save for two gold crowns. The specific gravity of the urine was 1,020; tests for albumin, sugar and bile gave negative results. Despite the fact that his pain was felt more in the upper abdominal region than elsewhere, the only tender spot was in the region of McBurney's point. The tenderness was not acute. No muscle guarding and no skin hyperæsthesia was present. Rectal examination was unhelpful. No abnormality or tenderness was found in the shoulder-top region. In view of these findings he was referred to Dr. Cecil Sim, radiologist, of Wagga, for Graham's test and examination of the upper portion of the alimentary tract. This was carried out on April 1, approximately a week after the consultation. Dr. Sim reported as follows:

> Cholecystograms by the double-dose method showed a practically non-functioning gall-bladder. No stones were actually demonstrated, but in view of the history I suspect a stone-block in the cystic duct. Screening showed normal appearances in the chest. An opaque meal study revealed no organic lesion affecting the œsophagus, stomach or duodenum.

The patient was not again examined by me until he came for operation on April 20, nearly three weeks after the foregoing report. His abdominal pain was still severe, and tenderness was more pronounced over the whole of the right side of the abdomen. Muscle guarding was now present in the same region.

Under general anæsthesia, through a right paramedian supraumbilical incision, the gall-bladder was exposed. It was not over-distended, it had a perfectly normal appearance, and it had no adhesions or other evidence of recent inflammation; no gall-stones were present. The appendix was easily brought into view. It was seven inches long, distended at its upper extremity and inflamed, with a thickened, œdematous, fatty appendage. There was then no doubt that this was the inflammatory mass causing his trouble. This inflamed, thickened portion of the appendix was high up in front of the caecum and only an inch at its tip from the fundus of the gall-bladder when the patient was in the supine posture. The caecal end of the appendix was tied down by a firm adhesion from the pelvic region, causing an acute angle. Half-way between the proximal and distal ends of the appendix there was a large concretion, firmly wedged and "bulging" the appendix at that point. Beyond the "bulge" was the inflamed portion of the appendix. Examination of the appendix, after its removal, revealed the usual findings of thickened, blood-stained mucosa with superficial mucosal erosions, thickened walls and œdema in the portion of the appendix distal to the concretion.

Comment.

In view of the foregoing findings I communicated with Dr. Cecil Sim as a matter of mutual interest, and with his permission I quote from his reply:

> Experience has shown that three abdominal conditions are the usual causes of a "faint or no-shadow" result in cholecystograms. They are: (i) biliary pathology, about 80% to 90%, (ii) duodenal ulcer, (iii) chronic appendix. Latest opinions expressed from large clinics say that in cases of "faint or no-shadow" results, the cholecystograms should be repeated next day, after a further or third dose of dye. I have been doing this in Wagga for people who live here. Even after this in cases of duodenal ulcer and chronic appendix, it is still possible to obtain a "faint shadow" result. In my opinion the inflamed appendix was undoubtedly the cause of the "faint shadow" result.

In an attempt to elucidate the reason for this peculiarity of behaviour in certain such cases, I made a search of the available literature. There seems to be no end to the causes advanced; but I think Howard Curle[3] probably puts the matter most succinctly. He gives the following list of causes: (i) failure of absorption from the gastro-intestinal tract of an adequate amount of opaque medium; (ii) failure of the liver to excrete the dye into the biliary passages; (iii) pressure on the cystic duct; (iv) previous filling of the gall-bladder with bile, to the exclusion of an adequate amount of fresh dye-laden bile; (v) reflexes from the caecum or other part of the gastro-intestinal tract; (vi)

premature emptying of the gall-bladder. Curle draws the following conclusions, and his article gives very sound reasons for them: (*a*) Fat is an essential factor in the gall-bladder emptying mechanism. (*b*) Patients receiving a diet free from or poor in fat may have a gall-bladder which, not emptied for days, may be distended with thick concentrated bile, and such a gall-bladder, unable to admit more bile, will not be visualized in radiological examination. (*c*) All patients whose gall-bladder is examined as a routine measure or who have a questionable or doubtful clinical history should be given a diet rich in fat for several days or even weeks before radiological examination.

Before passing on to the question of shoulder-top pain in this case, I would ask that it be noted that conclusion (*b*) above is one of the links upon which I finally base my theory of the underlying mechanism in the patient's unusual symptomatology. If we turn, then, to this matter of shoulder-top pain, Professor John Morley,[4] who has written at length on shoulder pain in connexion with abdominal disease, gives two possible explanations for this location of referred pain. It is an accepted fact that cervical cord segments III, IV and V innervate both the skin over the shoulder and the central portion of the diaphragmatic peritoneum through the supraclavicular and phrenic nerves respectively. Morely first describes a referred pain from stimulation of the sensory phrenic nerve endings in the peritoneal surface of the central portion of the diaphragm muscle, the adequate stimulus being the irritant action of bacterial toxins in the inflammatory exudate in the peritoneal cavity, as the exudate seeps up over the upper surface of the liver. The emphasis is on "the central portion of the diaphragm", as the outer edge of the diaphragmatic peritoneum within one and a half inches of the rib insertions is not innervated by the phrenic nerve. Secondly, to explain the shoulder pain in cases in which there is no possibility that the central diaphragmatic area is being stimulated, Morley makes the following statement:

> Shoulder-tip pain on the right side is commonly mentioned in text books, but it is in fact an uncommon feature of biliary colic. It occurs only in some 5% of cases. It is due when present to an inconstant supply from the right phrenic nerve to the wall of the common or cystic duct.

It will be noted, however, that neither of Morley's suggestions seems to hold for a case of appendicitis without rupture in a man who is standing up when the pain is present, as in this case. As Spalding[5] states in reference to similar pain in perforated gastric ulcer: "It is unlikely that the gastric contents could have run up hill so rapidly that the diaphragmatic peritoneum was irritated at the same time as the peritoneum of the abdominal wall."

There have been several attempts by different authors to solve this veritable riddle of the Sphinx. Why should there be a sudden simultaneous pain in the shoulder top and in the abdomen? Spalding[5] suggests that in the case of ruptured gastric ulcer the cause is to be found in the production of a sudden pneumoperitoneum. He considers that the liver is held to the diaphragm by ligaments, but with a thin layer of fluid between as an additional suctorial support. When the air replaces this fluid, the liver drops and pulls on its ligaments. Obviously this will not hold as an explanation in the case of an unruptured appendix.

Mastin[2] reports two cases of appendicitis unassociated with rupture, in which shoulder-top pain was present. In both cases the appendices were low down in the right iliac fossa. Mastin has described a theoretical communication between the phrenic nerve and the terminal branches of the superior mesenteric plexus—in other words, an anomalous distribution of the phrenic fibres to the appendix.

No one, it would appear, has suggested that the pain in the shoulder top comes immediately from the gall-bladder region rather than from the appendix region, even though the latter is inflamed and the former is not. The association mentioned earlier of a "faint shadow" cholecystogram with a normal gall-bladder and subacute appendicitis rather leads one to believe that this may, in fact, be the clue, if not the complete answer, to the riddle.

The story then, as I see it, in the case reported is as follows. There was in this case an inconstant supply from the phrenic nerve to the wall of the cystic duct, as suggested by Professor Morley. With the acute appendiceal obstruction at the sudden outset of the illness, when the patient was stricken with simultaneous pain in the shoulder top and the abdomen, a reflex contraction of the gall-bladder and spasm of the cystic duct took place. This would cause his shoulder pain. As time went on, this spasm gradually subsided along with the shoulder pain, and he came for X-ray examination. His gall-bladder by this time was impenetrable to bile, because either dyskinesia of gall-bladder mechanism was still present (*vide* Best and Taylor[6]), or, the patient being on a starvation diet, as suggested by Curle,[3] the gall-bladder was full of unsecreted, concentrated bile and "unable to admit more bile".

Such an explanation would cover the cases recorded by Mastin[2] and Spalding,[5] to which brief reference has been made.

Summary.

A case of subacute appendicitis is described, with the following unusual features: (i) a history suggestive of gall-bladder disease; (ii) a macroscopically normal gall-bladder at operation despite a "no-shadow" cholecystogram; the causation of this is shortly discussed; (iii) shoulder-top pain associated with appendicitis; the mechanism of this is discussed, and the suggestion is made that the shoulder-top pain is related to gall-bladder dyskinesa directly, and only indirectly to the inflamed appendix itself.

Acknowledgements.

My sincere thanks are due to Dr. Cecil Sim, radiologist, of Wagga, New South Wales, for his constant unstinted help and valuable advice in difficult cases. My thanks are due also to my colleague, Dr. Blake H. Lewis, whose able assistance contributed to this report. Miss M. Rolleston, of the British Medical Association Library, Sydney, was of the greatest help in searching for the necessary references.

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PULMONARY TUBERCULOSIS SUPERVENING UPON SHRAPNEL WOUND OF THE CHEST.

By RUSSELL N. HOWARD,
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THE following case is a tragic curiosity, and it is thought to merit recording for this reason and also because it may serve as a reminder that, even from war surgery, the tubercle bacillus refuses to be completely excluded.

Clinical Record.

Gunner J.S.M., aged twenty-three years, enlisted on June 10, 1940. An X-ray photograph of his chest, taken on that date, revealed no abnormality.

On October 24, 1942, he received a shrapnel wound of the chest. The metal entered in the right interscapular region and a "sucking" wound resulted. Immediate pain, dyspnœa, cough and hæmoptysis occurred; the last-mentioned lasted about a week. Primary suture was performed in the forward area, no exit wound being found. Prior to this the patient had felt perfectly well and had had no cough.

On October 25, he was admitted to an Australian lines of communication hospital; a blood transfusion was given and an X-ray photograph of his chest was taken. This revealed a large left-sided hæmopneumothorax; the fifth and sixth left ribs were fractured close to their angles; no foreign body was seen; the right lung appeared normal.

On November 3, he was transferred to another Australian hospital. He was then very ill, and his temperature was of the "septic" type, rising to 104° F. in the evenings. His wound was still "sucking" and he had a pyopneumothorax. On November 8, an intercostal tube was inserted at the "site of election" into the left pleural cavity. On November 12, an X-ray examination showed the pleural cavity to be well drained; the left lung had largely collapsed against

the mediastinum; appearances consistent with broncho-pneumonia were present in the right lung. Sulphapyridine was administered without clinical improvement being evidenced.

On December 4, the position was as follows. Clinical signs of bronchopneumonia were still present in the right lung and ten ounces of pus were draining daily from the empyema. The parietal wound, covered with pale granulation tissue and exuding thin pus, was unhealed and communicated freely with the thoracic cavity. A broncho-pleural fistula was present. Negative pressure could not be maintained in the drainage system, owing partly to this and partly to the external fistula. The cavity was pumped as dry as possible three times a day (if this was not done pus accumulated). In a culture of the pus *Bacillus pyocyaneus, Bacillus coli communis* and streptococci were present. The hæmoglobin value was 63%. The nature of the temperature chart was unchanged. On this date the patient was given a transfusion of one pint of blood, and a course of sulphathiazole therapy was started.

On December 17, it was noted that a fifty-gramme course of sulphathiazole had effected no improvement (it was then discontinued); that an X-ray photograph showed the left lung to be expanding, although the right lung still exhibited changes similar to those previously found; that the wound was still "sucking"; and that œdema of the legs and "clubbing" of the fingers and toes were present. A constant cough, which produced no sputum, was proving very irritating. The hæmoglobin value was still 63%, and a further pint of blood was given by transfusion.

On December 20, a second course of sulphapyridine therapy was started.

On December 24, after much difficulty, a specimen of sputum was obtained and sent for examination for the tubercle bacillus; it proved to be laden with this organism. The empyema pus was then examined, with a similar finding. The administration of sulphapyridine was discontinued, as it had failed to effect any improvement. The patient's condition was by now deteriorating, and it was decided to put him on a hospital ship in the hope that he would reach Australia.

He was transferred to the ship on January 16; he died at sea ten days later.

Comment.

This man was in a ward with about thirty battle casualties suffering from chest wounds. It is, then, perhaps not surprising that, despite being examined by a multiplicity of surgeons and physicians, and despite the fact that, in addition to these, his X-ray photographs were scanned by no less than four specialist radiologists, the diagnosis of pulmonary tuberculosis was not made sooner.

The features that eventually directed investigations into the right channel were the rather tuberculous-looking wound and the long-continued bronchopneumonia, unresponsive to sulphonamides.

After the diagnosis had been made on bacteriological grounds a further careful perusal of the X-ray films showed that a cavity at the apex of the left lung was visible in all, its contour having been confused with that of the first rib margin and the edge of the expanding lung.

It would appear that perforation of the left lung caused the activation of a latent tuberculous lesion. Along the track of the missile formed a broncho-pleural fistula, providing a path to the pleural cavity for tubercle bacilli. In the other lung an aspiration tuberculous bronchopneumonia developed. It is of some interest to note that there was no family history of tuberculosis.

In a series of 84 successive penetrating lung wounds in Australian battle casualties from the Western Desert, this case is quite unique.

DYSENTERIC ARTHRITIS: CASE REPORTS AND COMMENTS.

By N. J. BONNIN,
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AND
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ALTHOUGH arthritis is well enough known as a complication of dysentery, there are features about the following cases at an Australian general hospital which make it desirable to record them. These features are: (i) the essentially monarticular nature of the disorder, (ii) mildness of the diarrhœa and the long interval between the acute attack and the onset of joint complications, and (iii) the associated history of trauma in two cases, leading to the provisional diagnosis of a surgical condition of the joint.

Case I.

Private T., aged twenty-three years, was first admitted to the surgical wards of this hospital on July 16, 1942. He gave a history that eight days before, while running, he had struck his left knee cap against a tree with heavy impact, his knee being semi-flexed. He immediately dropped to the ground, and the knee was painful for the next week, during which he limped about doing light duties. The day before his admission to hospital, on rising from the "lie-low" position, he heard his knee give an audible "crack" and felt a sudden acute pain. His knee swelled soon afterwards, and had been swollen and painful since.

On examination a moderate amount of fluid was found in the joint, with a patellar tap and a slightly tender point above and medial to the patella. Active extension of the knee caused pain deep to the patella. Otherwise, examination revealed no abnormality. The patient was treated by rest and local pressure, followed by graduated exercise. On July 26 the knee was still painful, although the effusion had gone, and he was transferred to another Australian general hospital for X-ray examination. No bony lesion was detected, and he was discharged from that hospital to his unit.

On August 8 he was again admitted to this hospital. His knee had been painful on walking since his discharge; for the last two days it had been swollen, following a day's digging, and it had been aching, especially at night. On examination, the joint was distended with fluid and felt warmer than the other knee. There was a stab of pain on active movement, when the knee was flexed some 20°. He was given rest in bed with local pressure and quadriceps contractions as before. At the end of one month, the joint was still painful and a patellar tap was still present. A further X-ray picture was taken; this showed a circular crack on the medial edge of the anterior aspect of the lateral femoral condyle. A subchondral fracture or early *osteochondritis dissecans* was suspected, and the knee was immobilized on a Thomas splint. Ten days later, the synovial effusion had disappeared; after a month the extension was removed, and later active exercise in the splint was begun.

On November 20 the splint was removed, and one week later the patient was allowed up on crutches. The knee still had a tendency to develop an effusion, which disappeared overnight. On December 12 an X-ray film showed the articular surfaces of the femur to be regular in outline and of normal appearance. At this stage the patient was walking quite well; but he still complained of aching pain in the knee at night, and an effusion occurred towards the end of the day. The pain on pressure over the patella with the knee flexed 20° had gone. On December 30 the patient complained of a "gumboil", and a dental X-ray examination disclosed two other chronic apical abscesses at the roots of devitalized teeth. Focal sepsis was suspected as a cause of the continued effusion, and three teeth were extracted. Examination of a prostatic smear revealed no abnormality.

Ten days later, the knee was no better and no worse, and the case was reviewed. After cross-questioning, the patient recalled an attack of diarrhœa in March, three and a half months before his first injury. He had had no diarrhœa since, but had been constipated. A sigmoidoscopic examination was made. The bowel mucosa appeared normal up to ten inches from the anus. A swab was taken, and culture gave a growth of *Bacterium dysenteriæ* Flexner I. The joint was aspirated and clear glairy fluid was obtained; it was found to be sterile. He was transferred to a medical ward, where he was given the routine course of sodium sulphate therapy with dietary restriction. At the end of this course culture of the stools still yielded dysentery organisms, and he was then given a course of 120 grammes of sulphaguanidine. After this an attempt at culture from the stools produced negative results; moreover, no dysentery organisms were grown from material obtained on a swab taken through the sigmoidoscope. The patient was now walking, the aching pain at night had gone, and the condition of the knee was improving, though there was still an occasional slight effusion after exercise, and joint crepitus was present, which had not been noted before. With graduated exercise the knee gradually improved, but there is still evidence of joint crepitus.

Case II.

Private A., aged twenty-two years, was admitted to the surgical wards on December 30, 1942. Three months previously he had wrenched his left knee while running. His knee swelled, and he was treated in hospital for three weeks by rest followed by graduated exercise. His knee gave no further trouble until three weeks prior to his admission to hospital, when for no apparent reason it swelled again; it had remained swollen since. The joint had been aching at night.

General examination revealed no abnormality. The left knee was distended with fluid, and flexion was correspondingly limited. There were no tender points and no abnormal mobility. The knee joint appeared normal on X-ray examination. When the patient was questioned closely, a history of recurrent attacks of mild diarrhœa was elicited, the last attack having occurred five and a half months previously—that is, six weeks before his injury. He was given a purgative, and an attempt at culture from the stool was made with negative results. A sigmoidoscopic examination was then made. The mucosa of the lowermost nine inches of bowel appeared normal; but a swab was taken, and a growth of *Bacterium dysenteriæ* Flexner P. 274 was obtained. He was transferred to a medical ward, where he was given a routine course of sodium sulphate therapy with dietary restriction; but after this, culture from the stools still produced positive results. This course of treatment was repeated, but again culture produced a positive result. He was given a course of 120 grammes of sulphaguanidine, and when this was completed, his stools failed to yield dysentery organisms on attempted culture. The results of sigmoidoscopy and of examination of a swab were also negative. The effusion in his knee had now entirely gone; his knee was painless and clinically normal. After a course of graduated exercise he was discharged from hospital on February 26, 1943, fully recovered.

Case III.

Private J., aged thirty-seven years, was admitted to the surgical wards on January 16, 1943. Nine days previously he had developed stiffness of the right knee, followed in two days by painful swelling of the knee joint, which rendered him unable to walk. There was no history of recent injury and no other joints were involved. Four months previously he had had an attack of diarrhœa, but had passed no blood or mucus. Since then he had occasionally passed fluid stools.

On examination, the right knee was swollen and slightly tender. It was warmer than the left knee. Patellar tap was elicited, but no points of acute local tenderness or other abnormal signs were discovered. No painful inguinal glands were present, and the other joints were all normal. An immediate diagnosis of dysenteric arthritis was made, and the patient was transferred to a medical ward. X-ray examination of the knee revealed no abnormality. Sigmoidoscopy was performed. The bowel mucosa appeared slightly granular. A swabbing was taken from the bowel wall, and culture of the material produced a growth of *Bacterium dysenteriæ* Flexner. The knee was treated by rest, the application of pressure and the local use of Scott's dressing. The patient was given the routine course of sodium sulphate therapy with dietary restrictions; but at the end of the course culture from the stools still yielded a positive result. The course was repeated, but again culture produced a positive result. At this stage his knee was still swollen and painful. He was then given a course of 120 grammes of sulphaguanidine. The knee still contained fluid, and cultures of the stools still produced positive results. A further course of saline therapy was given, combined with daily bowel irrigations with eusol, one part in five parts of water.

This patient is still under observation; but cultural examinations now produce negative results and the condition of the joint is rapidly improving.

Case IV.

Sapper H., aged thirty-five years, was admitted to hospital on December 14, 1942, with a diagnosis of synovitis of the left knee joint. Two days previously he had noticed stiffness of the left knee, which became progressively worse, and on his admission to hospital he complained of pain in the popliteal fossa, especially at night. No other joints were affected and there was no history of injury. The soldier had had several attacks of diarrhœa eight months previously.

On examination, the left knee joint contained a moderate amount of fluid and patellar tap was elicited. The left knee was warmer than the right, and there was a limitation of movement, both active and passive. An X-ray examination of the left knee joint revealed early osteoarthritic changes.

The case was regarded as being one of infective polyarthritis, which disease was prevalent at the time of the patient's admission to hospital. However, his subsequent course was not typical, and sigmoidoscopy revealed mild granular proctitis. Culture of a swabbing taken from the bowel mucosa produced a growth of *Bacterium dysenteriæ* Flexner. Following two courses of sodium sulphate therapy, no dysentery organisms could be grown from the stools, and his knee appeared normal; it was not considered necessary to give him sulphaguanidine. With graduated exercises he made a complete recovery, and was discharged from hospital on February 26, 1943.

Case V.

Staff Sergeant K., aged twenty-six years, was admitted to hospital on August 8, 1942; six weeks previously he had had dengue fever associated with diarrhœa. One month prior to his admission, following a fifty-mile route march, the second toe of his right foot became swollen; five days later his left ankle became swollen and painful, and it remained persistently painful until he was admitted to hospital.

On examination, his left ankle was swollen, hot and œdematous over the lateral malleolus. The second toe of the right foot was similarly hot and swollen. No local focus of infection was discovered in the throat, teeth or prostate. An X-ray examination of joints revealed no arthritic changes. Despite rest, the joints remained inflamed. On examination of the stool, on October 12, a few adherent flecks of mucus were seen; microscopic examination disclosed a few pus cells and red blood cells, and *Bacterium dysenteriæ* Flexner was isolated on culture. Following a course of treatment in which 126 grammes of sulphaguanidine were given, the condition of the joints was much improved, and with graduated exercise the patient made a complete recovery. He was discharged from hospital on November 12.

Discussion.

There was one other patient with dysenteric arthritis; but this patient developed acute tenderness and limitation of movement of the shoulder joint during an attack of dysentery, and the clinical history will not be detailed here, as it conforms to the typical dysenteric arthritis occurring during the acute phase of an attack of dysentery.

With reference to Case I, the relative parts played by trauma and dysentery in the condition of the joint are not clear. A subchondral fracture may have been present. Whether this was so or not, it is certain that the diagnosis and treatment of the dysenteric arthritis were delayed for months by the conviction that the condition was entirely traumatic.

The features common to these cases were the fairly sudden onset of mild aching pain, worse at night, with a moderate synovial effusion and a raised joint temperature. There was a striking absence of acute local tenderness and pain on movement, and of periarticular thickening. The effusion and aching persisted in spite of rest. In all cases, there was a history of an attack of diarrhœa, occurring from six weeks to eight months before the onset of the arthritis, and in no case had this diarrhœa been serious enough to warrant the patient's admission to hospital. This syndrome was typical enough for us to make a reasonably confident provisional diagnosis, as was made in Case III. It would seem that in the Northern Territory, and probably in other areas where dysentery is prevalent, any patient with arthritis of this type should be investigated with dysentery in mind, and the presence of dysenteric arthritis should be suspected in any traumatic condition of a joint associated with effusion, which does not respond properly to treatment. A history of diarrhœa was sometimes difficult to elicit. (In two of the cases quoted, the occurrence of diarrhœa was at first denied.) Troops in tropical areas come to regard some looseness of the bowels as inevitable, and the propaganda of the patent medicine advertisers has so infected the minds of many, that they regard with pride the fact that they have three or four loose motions per day, and refer to their bowels then as being "extra regular". Sigmoidoscopy was performed as a routine measure in the investigation of these cases, and a swab was taken by heavily rubbing the mucosa in the upper part of the rectum or the sigmoid, whether this mucosa appeared normal or not. That this is a far more reliable method than cultural examination of fæces has been adequately demonstrated by one of us (H.B.K.) at this hospital. Cultural examination of the stool, in fact, seems as

likely to be misleading as to be useful (as has been illustrated in Case II) unless a negative result is regarded as of no import. An X-ray examination of the joint was made in each case. Diagnosis rested on the typical joint picture, with negative X-ray findings, and the presence of Flexner organisms on a swab taken from the mucosa of the lower part of the bowel; it was supported by the therapeutic test.

A cultural examination of joint fluid was made in only one case, and this produced negative results.

The essential part of the treatment of the joint appeared to be the elimination of the dysentery organisms from the infected bowel. Prolonged local treatment to the joint in Case I was ineffective.

The patients were given sodium sulphate; a start was made with 30 grains every two hours, until free watery stools were obtained, and then the dosage was continued every four hours for a total period of seven to ten days; this treatment was associated with the prescription of light, non-irritant diet. This course of treatment was followed by a course of sulphaguanidine therapy, except in Case IV, in which it was not considered necessary. In the more resistant cases, eusol bowel irrigations were adopted as local therapy. It was not until the stools yielded negative results on cultural examination that real improvement of the arthritis occurred. During the early stage, the joint were kept at rest.

Two other cases can be recalled; these men were admitted to the surgical wards of this hospital with a provisional diagnosis of traumatic arthritis of the knee. Both had a history of mild trauma, and each had a joint with a raised temperature and with an effusion which persisted in spite of rest and the application of pressure. They were transferred to another hospital without a diagnosis; but in retrospect, it seems likely that they were both suffering from dysenteric arthritis.

Summary.

Five cases regarded as dysenteric arthritis of the knee have been described. In two cases there was a history of trauma. Three other cases are described in which the arthritis occurred without a history of acute dysentery. The patients presented a typical syndrome with fairly sudden onset of aching pain, often worse at night, and moderate effusion, which persisted in spite of rest. The joint temperature was raised; but there was a striking absence of acute local tenderness and of severe pain on movement.

All the patients were dysentery "carriers". Cases of dysenteric arthritis occurring in the acute phase of an attack of dysentery have not been considered in this report.

The diagnosis rested on the typical clinical picture, together with negative X-ray findings and the discovery of dysentery organisms on swabbing from the bowel mucosa taken via the sigmoidoscope. The importance of carrying out this sigmoidoscopic examination rather than the simple cultural examination of fæces is stressed.

Effective treatment consisted in eliminating the infection from the bowel. Local treatment to the joint, by itself, seemed useless.

Acknowledgement.

We wish to thank the Director-General of Medical Services for permission to publish this report.

Reviews.

SPECTROPHOTOMETRIC ANALYSIS.

THE physical investigation of body fluids is a difficult procedure which has assumed increasing importance in latter years. For this reason the recent translation of a monograph of spectrophotometry applied to medicine first published in 1933 can be justified.[1]

Valuable information regarding the condition of a number of body fluids can be gained from a simple inspection of the colour either in the natural state or after the addition of suitable chemical reagents. The estimation of the colour of a solution, however, does not lend itself to any great degree of exactness, being influenced both by the colour sensitivity of the individual eye and by the possible presence of other pigmented fluids. The colour of any solution viewed in white light is determined by the wavelengths which it absorbs. The presence of any fluid which absorbs particular bands of wavelengths can be detected by examining the transmitted light with a spectroscope. If the absorption is not limited to particular bands, but extends generally over a wide range of wavelengths, then precise information can be obtained only by the quantitative measurement of the absorption spectrum.

The method of spectrophotometric analysis can be used for fluids which absorb wavelengths outside the visible range. The method permits of a quantitative estimation being made of the concentration of most pigments in the fluid; the presence or absence of other contaminating fluids can also be determined.

The author deals in the first sixty pages with the theoretical laws of spectral absorption and describes in detail the construction and mode of operation of a number of commercial spectrophotometers. Special attention is paid to the necessity for correct adjustment and to the possible sources of error and means for their elimination.

Approximately half of the monograph is devoted to a detailed discussion of the spectrophotometric analysis of hæmoglobin and of its derivatives and breakdown products. Finally, the analysis of blood serum and of urine in their normal and pathological forms is treated in some detail. Throughout, the author gives typical absorption curves for the various fluids together with tables from which the concentration of a particular pigment can be determined from observed absorption measurements. The results of other workers up to 1932 are quoted extensively, the majority of these being taken from continental journals.

The monograph is published by a firm which manufactures spectrophotometers. The translators have added a small section dealing with advances in equipment since 1932 in which references to the products of the publisher predominate. The printing and illustrations are well done.

Although the monograph may not provide the experienced pathologist or physiologist who has kept abreast of the literature with much new information, it should prove of considerable value to those commencing these specialties and be a useful book of reference in clinical laboratories.

[1] "Spectrophotometry in Medicine", being the authorized translation of *"Medizinische Spektrophotometrie"*, by Priv.-Doz. Dr. Ludwig Heilmeyer, translated by A. Jordan, M.B., B.S., D.Sc., M.R.C.P. (London), and T. L. Tippell; 1943. London: Adam Hilger Limited. 8¼" × 5½", pp. 294, with 120 figures.

Notes on Books, Current Journals and New Appliances.

AUSTRALIA'S CHANGING CONSTITUTION.

IN "Australia's Changing Constitution", the author, Mr. D. H. Drummond, M.L.A., analyses contributions to discussions on the advisability of alteration to the Constitution of the Commonwealth.[1] One school of thought is for various reasons fearful of change, and another favours abolition of State parliaments and institutions. A third school advances the theory that it is possible to modify the Constitution in such a manner as to solve existing governmental problems and "secure to this great country with its far-flung frontiers that real measure of local self-government which is essential to its growth and progress". The book contains an informative preface by Professor F. A. Bland, Professor of Public Administration, University of Sydney, and interesting chapters on "The Abolition of State Parliaments", "Unification" and "Other New World Parallels".

It appears inevitable, in view of the changes resulting from the war, that proposals to modify or alter the Constitution of the Commonwealth will be submitted to the Australian people. Members of the medical profession are concerned with proposals in regard to health legislation. Readers of Mr. Drummond's book will be the more informed to consider those proposals, because they will gain a knowledge of some of the problems associated with the Constitution and government of Australia.

[1] "Australia's Changing Constitution: No States or New States", by D. H. Drummond, M.L.A.; 1943. Sydney and London: Angus and Robertson Limited. 7" × 5", pp. 149. Price: 3s. 6d.

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References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

THE SOCIAL BACKGROUND OF THE FUTURE OF MEDICINE.

In a democratic State it is the privilege of every citizen to express an opinion on measures that are undertaken in the public interest by the government of the day. This is acknowledged by every democratically minded person to be sound and reasonable. Those who air their views are actuated by all kinds of motives and base their statements on information gained from divers sources, and sometimes, of course, they speak as it were *ex vacuo*, the vacuum being in their own minds and information entirely lacking. The man who has no knowledge of a subject is foolish to express opinions about it, and still more foolish to be dogmatic when he does. If he seeks information at a reliable source, his native ability may be sufficient to allow him to apply the principles that he holds and to direct his action to an appropriate end. This kind of thing is seen quite often in this country and, we may be certain, in many another. In the world of politics, for example, some shrewd and intelligent man is pitchforked into a position as minister in charge of a certain department; he succeeds when he is wise enough to allow his departmental officers full play and to learn departmental routine and sometimes even administrative finesse from them. In medical departments of the public service also those who have eyes to see have known "dud" medical heads to be shepherded down the precarious ways of administration by their lay officers. Parliamentarians, departmental heads and others in official positions who have become masters of their several spheres would no doubt all be able to become eloquent on the irruptions of ardent but ignorant, or at best partly informed, enthusiasts. The more competent a person in authority is, the better will he be able to deal with such intruders, provided he is prepared to put principles into practice and does not try to yield to importunities of a lesser order. If therefore it is right that citizens of a democracy should air their opinions, it becomes increasingly necessary that those who occupy positions of trust and responsibility should widen their outlook and add to their knowledge. It is unfortunately true that they do not always realize the importance of so doing, and in consequence ill-considered measures reacting on the public are sometimes taken. It is a feature of democracy as we know it that Jacks of all trades claim to be masters of crafts with which they have little more than a nodding acquaintance. There is need to see to it that when the future of medical practice is determined, the planning shall as far as possible be done by those who have a full knowledge of the implications of the complex subject.

On many occasions during the last few years the future of medicine has been discussed in this journal. Discussion has centred chiefly round what type of practice is to be favoured—whether the present form of private practice is to go on with certain modifications likely to give the public a better service, or whether some other form of service will be introduced in which the practitioner will attend persons allotted to him under a fee-for-service system or a *per capita* payment system or as a whole-time salaried officer. The object of any change in the form of medical practice is to provide a system of medicine which will "prevent disease and relieve sickness and make available to every one in the community all necessary medical services". Time and time again we have sought to show that what has become known as "positive" health will not be achieved by the community unless all the sociological conditions that predispose to disease and aggravate its manifestations are first of all eliminated or made ineffective. The Federal Council of the British Medical Association in Australia has in its declared "principles" made the same kind of pronouncement, and those who read the *British Medical Journal* will know that the Parent Association has found it necessary to express the same views in no uncertain way. Apparently there is still need to insist that sociological problems are inseparable from the practice of preventive medicine—in other words that sociological medicine is an entity that is neglected only at the peril of communal health and general well-being. The advent of sociological medicine has been well described by René Sand in his book "Health and Human Progress", published in 1935. (See THE MEDICAL JOURNAL OF AUSTRALIA, April 25, 1936, page 579.) Sand points out that for about fifty years a few physicians and hygienists had drawn attention to the part played in general prosperity by the health of the masses. He adds that, had it been then recognized, sociological medicine, which the pioneers foresaw without giving it a name, should have been able to find its direct line of expansion. Instead, towards the middle of the nineteenth century it insinuated rather than inserted itself. It is simple at this stage in our development to deplore the tardy recognition mentioned by Sand, the unwillingness of man in those days to see what in our opinion was then staring him in the face. In our deploring we would do well to reflect on the refusal of our enlightened selves to apply the knowledge that we have gained and on our complacent attitude towards recognized evils. But to return to the advent of sociological medicine—Sand states that it was roused to a fragmentary and anonymous existence through the initiative of philanthropists, of social-minded employers and of the working class itself, as well as

through legislative and administrative measures. "Deaf to the appeal of its prophets, medicine did not approach the social domain spontaneously, but was dragged into it by the development of hygiene, of public assistance, of social insurance, of labour legislation." We can agree with Sand that this evolution was both logical and necessary. Medicine had been nourished by physics and chemistry and then by physiology, bacteriology and parasitology; it remained for it to receive logically the contributions of psychology and sociology. The evolution was necessary because, to be preventive, medicine must regulate individual and social life—social factors demand even curative methods, for the working of our organs is the mirror of living conditions. "From this moment on, medicine wants to recognise the whole nature of man, as shaped by his home, his surroundings, his work, his recreation, his struggles and aspirations. Thus every part of medicine becomes social." The medical profession in this country knows that sociological medicine is a part, an unseparable part, of medicine as a whole. The important discussions of the Victorian Branch, published in this journal in August, 1941, bear witness to the truth of this statement. Its members also know that social security, which is nowadays on everybody's lips, is not possible unless all the objectives of sociological medicine are attained. As was stated in these columns in December, 1941, social security will not be achieved by reforms, however extensive they may be, in one aspect of social life. To attempt such a task is like plugging one of several holes in the bottom of a leaky boat in the hope that no more water will enter.

What then is to be done? So far the medical profession in Australia has been content to talk and to leave it at that. It is in the position of being able to supply provender for those who speak *ex vacuo*, but it must realize that it has not itself learned all that there is to learn about the subject. In discussing the Victorian Branch papers in August, 1941, we suggested that "special groups" should be formed within the Branches to study sociological medicine in all its aspects. The New South Wales Branch has established its Department of Medical Sociology and Research and is doing useful work in the teaching of the public. Rumours are also current that a move has been made in one Branch to establish a Section of Medical Sociology. If special sections were formed in the several Branches the members of the sections would probably try at full Branch meetings to infect the general body of members with their keenness. The point is that unless a continuous effort is made to extend knowledge and to stimulate interest, complacency will follow and before long be succeeded by neglect. This does not in any way imply that there are not at the disposal of medicine ample data for efforts to extend the doctrines of medical sociology among influential persons outside the profession of medicine. On the contrary there is every reason why efforts of this kind should be made and without any delay. We have stated that so far the medical profession has been content with a formal expression of its views. The time has surely arrived when something further should be done. In its Sixth Interim Report the Parliamentary Joint Committee on Social Security made certain suggestions regarding the future of the practice of medicine and mentioned only in passing such questions as sanitation of environment, housing, nutrition, physical fitness and so on. The National Health and Medical Research Council drew up an elaborate plan of a salaried medical service, and many months later adopted a resolution setting out certain health matters which in its opinion were worthy of special attention after the war. Many of the matters quite obviously should have been given prominence before so much attention was given to details of a system of medical service. Only at its next meeting is the Council to receive a report on the importance of proper housing in relation to health. Now is the time when the Federal Council should make an official request to the Federal Government to deal at once with some of the clearly defined problems of medical sociology. Such a request could not be regarded as an ardent but ignorant irruption of the kind already mentioned. Either the Federal Government in its declared intention to institute a new form of medical service is merely determined to give the people something for which they will not pay directly, or it is not seized with the folly of putting the cart before the horse. The Government could not well ignore the representations of such a body as the Federal Council, planned as they would be on the opinions of trained medical sociologists throughout the English-speaking world. If René Sand and others like him are right in the view that environmental conditions can and do predispose to disease, and this view has not been denied by any competent observer, it is a matter of common sense to make the environment healthy before anything else is done. The medical profession is anxious and willing to cooperate with the Government in the prevention of disease and in the provision for the people of Australia of a soundly planned medical service. It looks, however, as if the profession will have to adopt a direct approach and refuse to rely any longer on the indirect method. In the circumstances we can do no better in conclusion than quote words of René Sand which were reproduced in these columns on a previous occasion:

> Since a human being declines or becomes perverted if overwork, poverty, or neglect drag him below the level of an existence compatible with the maintenance of his physical and moral health, *the first rule is to ensure that no one at no time shall be wanting in this necessary minimum.* Sociological medicine demands the provision, *by collective measures,* of favourable labour conditions, good housing, decent wages, generalised insurance, sanitary, technical and educational services, to be completed by the *individualised action* of medical and social case work.

Current Comment.

AN UNUSUAL INTRAPERITONEAL FOREIGN BODY.

FROM the Groote Schuur Hospital, Capetown, comes a most unusual and at the same time instructive report.[1] The details at first sight appear almost incredible, but the evidence is irrefutable. A working man, a Kaffir, carried a table-knife in his peritoneal cavity for five years; he did not know it was there and it caused him no discomfort. He came to hospital with a history of discomfort in the ischio-rectal fossa, extending over a period of three months. He experienced pain when he sat down and the pain was becoming worse; it was not severe but distinctly uncomfortable. Rectal examination revealed a tender lump in the right ischio-rectal fossa; the lump was unusual and an X-ray examination was made. A table-knife was discovered with its handle near McBurney's

[1] *South African Medical Journal*, June 26, 1943.

point and its point near the skin in the ischio-rectal fossa. Further inquiry revealed that the man had been admitted to the same hospital five years previously with a "pain on coughing and on taking a deep breath". He had been stabbed in the epigastrium three days prior to admission. Tenderness and rigidity were present in the epigastrium, but not in the lower part of the abdomen. He persistently complained of pain in the epigastrium, worse after eating. He remained in bed for a fortnight and was discharged from hospital on the thirtieth day, the final note in the clinical history stating: "he appears fit except for actively complaining of pain, but the story is variable. A large functional element?" It transpired that at the time he received the injury he was "very drunk". The patient was a lorry-driver and returned to full work. Lennox Gordon, who makes the present report, states that a laparotomy was performed. No evidence of damage to stomach or intestines was found. The knife was lying free in the peritoneal cavity and it was completely surrounded by a sausage-shaped sheath of omentum, extending down into the pelvis. The knife was removed without difficulty; it was not rusted and the colour of the handle had apparently not changed; the blade was very sharp. Gordon's comment that it was easier to remove the knife than to explain how it got into the abdomen will be readily endorsed. The moral of this extraordinary tale lies in the suggestion made when the patient left hospital the first time, that a large functional element was present. To attach a label of "functional" is an easy refuge for the clinician, but after all the patient is the only person who feels the pain of which he complains.

DISSECTING ANEURYSM.

OSLER states of dissecting aneurysm of the aorta, that it always commences at a split in the intima at the site of syphilitic mesaortitis, and that "in fully half of the cases there are two very characteristic stages, the first corresponding to the rupture of the inner coats, the second eight to ten hours, or as long as fifteen or sixteen days later, to fatal rupture of the external layer". He points out also that the dissection may extend far along the aorta and reach even the femoral arteries and their subdivisions, and that in rare cases healing may occur and the aorta may become a double tube.

The lining of the adventitious tube is smooth and consists of newly formed intima. An investigation of this disease has recently been made by R. Bruce Logue.[1] His opinions are based on a study of the literature and of twelve cases that he observed during three years. In discussing the ætiology Logue points out that syphilis is not now regarded as having any influence. He believes that the fibrosis of syphilitic aortitis would tend to prevent dissection. Syphilitic aortitis was found in only three of his twelve patients. He states further that the intimal tear is "almost never in an atheromatous ulcer", and that in some cases (two of his twelve) no intimal tear is found. When the intima is not torn the bleeding and subsequent dissection follow the rupture of a vessel in the media. Cystic degeneration of the media (Erdheim's *medionecrosis aortæ idiopathica cystica*) is frequently present. Hypertension is the rule. Activities that tend to raise arterial tension have been thought to play a part in the causation. Logue mentions a number of secondary phenomena. For example: extensive involvement of a carotid artery may cause hemiplegia; damage of the lumbar arteries may impair the blood supply of the lumbar part of the spinal cord; damage of the renal arteries may cause hæmaturia; damage of the mesenteric arteries may cause gangrene of the bowel. The onset of dissecting aneurysm is marked usually by sudden sharp and rending pain or sometimes crushing and vice-like pain. Most commonly this pain is retrosternal, radiating towards the neck and perhaps the jaw, and through to the scapula. It may extend down to the epigastrium, lumbar region and thighs. Radiation of pain to the arms is unusual. Where the dissection commences in the abdominal aorta the pain is felt first in the epigastrium or the lumbar region.

The excruciating pain lasts a few minutes only, being replaced by a dull ache, which persists for several hours or days. Three of Logue's patients complained of feeling hot all over. Middleton has suggested that this phenomenon might be due to spontaneous periarterial sympathectomy. Shock is usual; but it is transient as a rule, and the blood pressure rapidly returns to a high level. Vertigo and syncope are common. Various murmurs, including pericardial friction rubs, have been heard from time to time. Rumbling or blowing murmurs have been heard along the course of the aorta. Numerous other signs due to impairment of blood supply to various tissues and organs are mentioned. X-ray examination sometimes shows, in addition to cardiac hypertrophy, a lighter shadow outside the main aortic shadow. This is characteristic of dissecting aneurysm. The causes of death in Logue's cases were intrapericardial hæmorrhage (the commonest), intrapleural hæmorrhage, uræmia, ventricular fibrillation and coronary artery occlusion. The fashion nowadays is to diagnose coronary artery occlusion in any sudden cardiovascular disaster. It will be well for medical practitioners to bear in mind the possibility of dissecting aneurysm. The diagnosis during life is practicable, as Logue has shown.

[1] *The American Journal of the Medical Sciences*, July, 1943.

THE TASMANIAN GOVERNMENT MEDICAL SERVICE.

THE report of the Tasmanian Secretary for Public Health for the year ended December 31, 1942, contains some information on the Government Medical Service in Tasmania. The information is not so full as might be wished, but some of the facts set out in tabular form will be of interest to readers in view of recent discussions on salaried medical services. At the present time fourteen districts in the island are served by whole-time salaried medical officers. The total population of these districts amounts to 31,532. The largest number in any one district is at Kingborough-Bruny, where there are 4,841 persons. At this centre during 1942 the medical officer (it is presumed there is only one at this place) gave 5,186 attendances upon patients. This total includes 3,203 made at the doctor's surgery, 1,981 made at the residences of patients and two made at hospital. This total does not include attendance in midwifery or workers' compensation cases. During the year only one midwifery patient was attended and 69 attendances were made on workers' compensation cases. The doctor covered 13,137 miles in the conduct of this practice during the year. The smallest population served was 1,003 at Flinders. Taking one of the populations of average size, we find that at Sorell, which has a population of 2,218 persons, the doctor made during the year 1,766 attendances. This total is much smaller than the average number, for the total number of attendances in the whole fourteen districts was 42,617. The doctor at Sorell attended 18 midwifery patients, and 19 in connexion with workers' compensation. He covered 7,507 miles during the year. Of all the attendances in all fourteen areas for the year, 18,711 were made at the patient's residence; 21,788 were made at the doctor's surgery and 2,118 at hospital. The total number of midwifery cases was 213 and of workers' compensation cases 301. The grand total of all attendances was 43,131. In all 132,959 miles were covered. The Secretary for Public Health states that as opportunities present themselves these appointments are being made more attractive in that modern homes are being acquired or erected for the use of the medical officers. Owing to shortage of medical practitioners it has not been possible to extend the services to many additional municipalities which have applied for the inauguration of the scheme in their districts. The Medical Survey Committee of the Parliamentary Joint Committee on Social Security would be interested in the statement that the work being carried out in the field of preventive medicine by government medical officers, who, of course, are general practitioners, "calls for favourable comment".

Abstracts from Medical Literature.

OPHTHALMOLOGY.

"Arc Flash" Conjunctivitis.

F. E. RIEKE (*The Journal of the American Medical Association*, July 10, 1943) discusses "arc flash" conjunctivitis. He holds that the name is unfortunate, since it implies that the injury occurs as the result of exposure of the eyes to the welder's first brilliant contact spark and is thus instantaneous. This occurs only rarely. The disease may be defined as conjunctivitis, usually of both eyes, caused by excessive exposure to the welder's electric arc and characterized by delayed onset, a self-limited course of twenty-four hours, pronounced bulbar hyperæmia, swelling of the lids, slight "sunburn" of the face, absence of ocular discharge other than tears, extreme photophobia and a feeling of sand in the eyes. At the shipyard from which the author drew his material, various prophylactic measures are in operation, which can completely prevent the occurrence of this injury. Such measures include the following: (i) the use of protective devices, such as "calobar" type flash goggles with side guards, helmets, welding clothing, and screens surrounding the welder at work; (ii) explanation of hazards through training classes, newspaper articles, safety pamphlets *et cetera*, and the dissemination of instructions in methods of protection; (iii) the bringing of ophthalmologists to the shipyards to instruct medical personnel in the diagnosis and care of eye injuries and diseases. For the employees the most effective educational agent has proved to be a personal experience of the pain and discomfort of the condition. Treatment is directed at the relief of symptoms, since the condition is transient. The chief measures employed are a darkened room or dark glasses, cold applications to the eyes, the use of a local anæsthetic agent, the use of a vasoconstricting drug such as ephedrine or epinephrine, the occasional instillation of a 1% solution of homatropine to relieve iris spasm in severe cases, the use of a lubricant such as castor oil to relieve corneal drying, and the exhibition of analgesics and sedatives when pain is severe.

Sodium Sulphathiazole Desoxyephedrine in the Treatment of Epidemic Keratoconjunctivitis.

H. S. GRADLE AND G. H. HARRISON (*The Journal of the American Medical Association*, July 10, 1943) present the results of treatment with sodium sulphathiazole desoxyephedrine in fifty cases of epidemic keratoconjunctivitis. They state that the disease has been responsible for the loss of many working hours during the past year, since the average time lost from work in each case is from fourteen to eighteen days. The authors have the impression that epidemic keratoconjunctivitis has three clinical phases: (i) a stage of active conjunctivitis with concurrent symptoms; (ii) a stage in which no conjunctival subjective symptoms are present, but the conjunctiva is still injected and slightly œdematous; during this stage corneal infiltrates are most apt to appear; (iii) a stage of pallor of the conjunctiva, during which the corneal involvement persists. The first and second stages merge into one another without a sharp dividing line. In this series of cases, unless specific indications were present, sodium sulphathiazole desoxyephedrine was the only medicament used. The authors believe from clinical observation that by its use the first stage, which usually lasts for fourteen to eighteen days, is reduced to three to seven days. They also have received the impression that corneal infiltrates are fewer and thinner than when other forms of treatment are used. They conclude that sodium sulphathiazole desoxyephedrine is a medicament that is harmless to the ocular tissues and appears to be of great value in the treatment of epidemic keratoconjunctivitis.

Mustard Gas Keratitis.

T. L. DE COURCY (*The British Journal of Ophthalmology*, February, 1943) reports in detail the history of a patient suffering from mustard gas keratitis, who has been under observation for more than twenty years. In May, 1918, when the patient was "at rest" in a back area, a gas shell burst at a distance of thirty or forty yards from him, and he thinks that some of the actual fluid entered his eyes. He was treated in the usual manner, and in August, 1918, was passed by a medical board and again sent to France; but he asked the board to make a note of the fact that his sight was not so good as before. In the early summer of 1922 he consulted the author, because of sudden, pronounced deterioration in his visual acuity, noticed particularly when he was playing games. The author noticed scarring of the corneæ, and he considers that actual ulceration must have taken place at the time of the gassing. A "pre-ulcerative" period lasted from 1922 to 1925; during those years rapid changes in refraction occurred, presumably due to degenerative changes in the corneæ. Anæsthesia of the corneæ was first noted in 1924, but had probably been present since the initial attack. As a result of the anæsthesia, it was necessary to maintain a constant watch, to remove aberrant lashes and foreign matter that might injure the corneæ. The ulcerative stage set in seven years after the gassing, and recurred at intervals during the next twelve years. Moderate vascularization accompanied the attacks. In the earlier stages of the disease cholesterin and other crystals were deposited in the corneæ, but they gradually disappeared. Drugs used as drops had to be prepared in much weaker solutions than for ordinary keratitis. The author suggests that in this case the only applications necessary may have been oily drops, normal saline solution or Locke's solution, because iritis was never a prominent feature. He utters a warning against the use of pure carbolic. The results of tarsorrhaphy were disappointing; ulceration again took place when the lids were opened. The careful application of X rays may possibly give good results, but short-wave diathermy proved to be of striking benefit. The fitting of contact lenses was followed by a great increase in visual acuity. However, the actual fitting of the lenses was a severe strain on the patient, and caused slight ulceration; fitting had to be suspended for three weeks. At a late stage of the disease "islets" of blood appeared over the pupil areas, but they disappeared after peritomy. No focus of infection was found in the patient to predispose him to mustard gas keratitis. The author pays a tribute to the intelligence, patience and cooperation of the patient, who after twenty adventurous years is able to lead a practically normal social and business life.

The Psychoneurotic Factor in Ophthalmology.

C. A. BAHN (*American Journal of Ophthalmology*, April, 1943) has attempted to evaluate the functional element in ophthalmic practice. He reviewed a series of 400 consecutive private patients, 215 men and 185 women. They complained of a variety of ocular abnormalities, and the author came to the conclusion that in 301 of the cases a psychoneurotic factor existed, the relief of which was capable of effecting symptomatic recovery. He states that psychoneuroses involving the eyes are essentially due to imbalance of the autonomic nervous system. The symptomatic manifestations consist of visual, sensory, secretory, vasomotor and motor disturbances. It is usually easy to separate the functional element of the patient's symptoms from the organic elements. The author believes that a suitable health routine is the only practical method of treatment of the functional element; such a routine integrates all the fundamentals of physical and mental hygiene in the best possible manner. The author discusses several cases, and gives in detail the health routine he uses. It includes attention to sleep, food, work, exercise, recreation, and bodily and mental hygiene.

Isolation of a Virus from Keratoconjunctivitis.

E. GALLARDO AND L. H. HARDY (*American Journal of Ophthalmology*, April, 1943) report a case of severe chronic cicatrizing keratoconjunctivitis with pannus, similar in clinical appearances and course to ocular pemphigus. A presumptive diagnosis of ocular pemphigus was made on the following grounds: (i) the slow, progressive cicatrization, most pronounced in the lower fornices; (ii) the periods of remission; (iii) the absence of follicles, inclusion bodies and the typical pannus of trachoma. Neither the skin nor the other mucous membranes were involved. During three different periods of exacerbation a virus, designated as "S" virus, was isolated from conjunctival scrapings. The virus was close to, if not identical with, vaccinia virus; typical elementary bodies and cytoplasmic inclusions like those of vaccinia were found. It was considered that the possibility of a laboratory contamination with rabbit pox or vaccinia could be ruled out. The virus was isolated by inoculation of material both into the rabbit cornea and into the mouse brain, as well as into the chorio-allantois of the developing chick embryo. Neutralization tests were carried out, in which vaccinia-immune serum neutralized the "S"

virus and anti-"S" serum neutralized vaccinia virus; the close relationship to vaccinia virus was thus established. The authors believe that the relationship of the virus to the keratoconjunctivitis must remain an open question, until observations on other similar cases are available.

OTO-RHINO-LARYNGOLOGY.

Streptococcal and Pneumococcal Infections of the Nose and Throat in Young Adults.

P. S. RHOADS AND M. E. AFREMOW (*Archives of Internal Medicine*, April, 1943) have made studies of the bacterial flora in the throat and nose of nurses, students and technicians. In persons apparently not ill, cocci causing greening in blood agar (*Streptococcus viridans* or pneumococci) were invariably present in the throat, and accordingly are believed to be of no pathogenic significance there. These organisms were rarely obtained from the nose of persons who were well, however, but were present in 98% of those in whom there was evidence of active disease, and in 63% of frankly allergic individuals who were subject to recurring attacks of rhinitis and sinusitis. Staphylococci were found in 70% of normal throats and in 100% of apparently normal noses. Hæmolytic streptococci were present in the throat of only 20% of apparently well persons and in only 5% of their noses. Further analysis of such persons harbouring hæmolytic streptococci yielded a history of recent nose or throat inflammation or of contact in the majority of instances with scarlet fever sufferers. Further study was made of a group of student nurses. Cultures on blood agar were made at the commencement of service and at weekly intervals thereafter. It was found that sore throat due to hæmolytic streptococcus occurred more frequently among nurses in the children's section of the hospital. Of those nurses who entered the latter wards, free of such infection, 72·6% had acquired hæmolytic streptococci as revealed by culture at some time before finishing their service, although the growths obtained were not abundant except in the case of a small number who were found also to have definite pathological states in the nose or throat. The authors, in conclusion, stress the evidence that carriers are a grave danger in these types of infection, which produce many of the complications that arise in scarlet fever, although usually in less severe form. Attempts to hasten the sterilization of such carriers were made with sulphathiazole and sulphadiazine both topically and by ingestion, but without encouraging results. A period of isolation while the patient is under such treatment is advised.

Desquamative Otitis Externa in Malta.

W. I. DAGGETT (*The Journal of Laryngology and Otology*, October, 1942) states that, as in other humid climates, inflammatory disease of the external auditory canal has caused quite considerable interference with efficiency in the fighting forces in Malta. Of 193 cases of *otitis externa* seen by the writer during the course of a year, 164 were regarded as true desquamative *otitis externa*, after cases of furunculosis or of true eczema were excluded. Otomycosis, though looked for both macroscopically and microscopically, was found to be very rare in Malta. In 75% of the cases in which examinations were made diphtheroids were found, either alone or associated with *Bacillus pyocyaneus*, *Bacillus proteus* or staphylococci. The diphtheroids disappeared rapidly in cases responding to treatment. Heat and moistness in a narrow poorly ventilated passage appear to be the predisposing factors. Atmospheric humidity in the hot months would appear to account for the great incidence of this form of ear disease in the summer time. As many cases occurred among non-bathers as among the regular swimmers. There are three essential steps in the treatment as now applied: (i) Thorough cleaning away of all detritus, especially from the deep anterior meatal recess. (ii) The use of wicks soaked in astringent solution, so that the meatus opens up owing to reduction of swelling and so that a protective coagulum is formed over the skin surface. (iii) Later insufflation of a film of powder over the now protected surface. It is stressed that the removal of all detritus from the meatus must be painstakingly performed, and that reflected light from a head mirror should be used. A fine gauze wick is then inserted to the depth of the meatus and drops comprising ten grains of lead acetate, one drachm of Burrow's aluminium acetate solution and peppermint water to an ounce are added until the wick is soaked. Resoaking of the same wick is repeated in the evening. A new wick is inserted next day and soaked for twice as long as on the first day. A light powder of freshly prepared iodo-boracic or plain boracic acid is applied on the third and fourth days. In most cases cure is effected in four days. Occasionally a second course of the same routine is required. When aluminium acetate was not available a 5% solution of silver nitrate was often successful. In some chronic cases 1% solution of brilliant green in spirit, applied between courses of the above routine, appeared to be of some value. The use of peroxide of hydrogen or of any preparations of carbolic acid is strongly condemned.

Mastoiditis.

C. E. TOWSON (*Archives of Otolaryngology*, July, 1943) presents an analysis of the results of 526 consecutive operations for acute or chronic mastoiditis. The ages of the patients ranged from six weeks to seventy years; in acute mastoiditis the highest incidence was among patients aged between four and twelve years, and in chronic mastoiditis it was in those aged between nineteen and thirty years. The ratio of operations for acute mastoiditis to radical mastoidectomies for chronic mastoiditis was 2:1. The leading ætiological factors in the production of mastoiditis were infections of the upper and lower portions of the respiratory tract, measles and scarlet fever. In the early stages of the condition, myringotomy was of value. Acute infections of the mastoid reached their peak incidence in mid-winter and spring, and the predominating organism was the hæmolytic streptococcus. In acute mastoiditis the number of leucocytes generally varied between 12,000 and 18,000 per cubic millimetre. After radical mastoidectomy had been performed, no one method of post-operative treatment was found suitable in all cases. For various reasons, the lateral sinus was exposed during operation in 222 cases and the dura 240 times. In none of these cases did complications occur. The author believes that when a small exposure is made accidentally, the area should be enlarged to a good size, to prevent the spread of infection through a small opening in the bone which will not allow proper drainage. Nearly half the patients suffering from chronic mastoiditis had cholesteatomata. The presence of cholesteatomata was found to be an indication for the performance of radical mastoidectomy. Intracranial complications followed 19% of the operations for acute mastoiditis and 20% of the radical mastoidectomies. Of the 205 patients who underwent operation for acute mastoiditis and for whom follow-up records were available, 98% were afterwards free from aural discharge; of the 123 who underwent radical mastoidectomy, and for whom follow-up records were available, 90% were afterwards free from aural discharge. The mortality rate over the whole series for the operation for acute mastoiditis was 6·6%, and for radical mastoidectomy it was 4·5%. Of the patients who underwent radical mastoidectomy, the hearing of 63·8% was as good as, or better than, their hearing before operation. The improvement in the author's opinion was connected to a certain extent with the duration of otorrhœa before operation, but was independent of the healing time.

Bone Fistula.

P. AND L. GUGGENHEIM (*Archives of Otolaryngology*, August, 1943) point out that, although the fistula operation today is being performed with enthusiasm by a few otologists, no one has yet succeeded in keeping patent an artificial fistula in a laboratory animal with any method which could be employed safely in the wall of the labyrinth. They have studied the question from the biochemical point of view and have experimented with rabbits. If sufficiently caustic chemicals are used a fistula can be kept patent. The copper ion was believed to hold promise by virtue of its catalytic oxidizing effect on vitamin *C* which is essential to the formation of the matrix of bone. Silver nitrate and trichloracetic acid solutions were used as controls. Copper sulphate which is the least caustic of the three, delays bone regeneration; the other two solutions are more caustic and inhibit regeneration. Specific interference with the biochemical mechanism of bone formation by copper was not demonstrated. The copper sulphate was the least caustic of the three solutions investigated and delayed bone regeneration; the other two inhibited regeneration. Neither of the two last-mentioned agents is suitable for use. "Between heroism and safety a satisfactory compromise does not appear feasible" from the approach adopted by the authors.

British Medical Association News.

ANNUAL MEETING.

THE annual meeting of the South Australian Branch of the British Medical Association was held at the Institute of Medical and Veterinary Science, Adelaide, on June 24, 1943, DR. R. J. VERCO, the President, in the chair.

Annual Report of the Council.

The annual report of the Council was received and adopted on the motion of Dr. R. G. Burnard, seconded by Dr. A. B. Russell. The annual report is as follows.

At the annual general meeting held on June 25, 1942, officers and members of the Council were elected as follows:

President: R. John Verco.

Vice-President: E. A. H. Russell.

Honorary Treasurer: P. T. S. Cherry.

Honorary Medical Secretary: John L. Hayward.

Ordinary Members of the Council: C. F. Drew, E. F. Gartrell, J. C. Mayo.

Owing to the election of Dr. Verco as president, it was necessary under the rules to appoint an additional vice-president, there being no immediate past president, and at a meeting of the Council held on July 2, 1942, Dr. H. M. Jay was elected. Upon the election of Dr. Jay as vice-president, Dr. H. Powell was elected as an ordinary member in order to complete the constitution of the Council.

At the Council meeting held on July 2, 1942, the following subcommittees were appointed:

Scientific: D. R. W. Cowan, H. M. Jay, M. Erichsen, J. C. Mayo.

Contract Practice: D. R. W. Cowan, M. Erichsen, H. Powell, C. F. Drew, A. F. Stokes, J. S. Covernton.

Ethical: M. Erichsen, J. L. Hayward, E. F. Gartrell, C. F. Drew, A. F. Stokes, H. Powell.

Parliamentary Bills: D. R. W. Cowan, Sir Henry Newland, A. F. Stokes, E. F. Gartrell.

Library: Sir Henry Newland, H. M. Jay, J. C. Mayo, E. F. Gartrell.

The president, immediate past president (if any), the vice-president, or vice-presidents, the honorary treasurer and the honorary medical secretary are *ex officio* members of all committees.

Monthly General Meetings.

The conditions throughout the year have led to the curtailment of the activities of the Branch in this direction. Unfortunately a state of war has continued since the last annual meeting, and with so many members on full-time active service, there has been difficulty in maintaining a representative attendance at the scientific meetings. It was therefore thought advisable to limit the number of meetings. The annual Listerian Oration was also suspended. In view of these difficulties, however, the Council has endeavoured to provide opportunity for members to hear papers on subjects of interest to the profession and enable them to have discussion on them. The following programme has been carried out:

July 30, 1942: Paper by Dr. D. R. W. Cowan, "Tuberculosis", demonstrated by cases and material from the chest clinic.

August 27, 1942: Clinical evening, when cases of interest from the military hospitals were shown.

October 29, 1942: Clinical demonstrations at Children's Hospital.

November 26, 1942: Clinical evening at Royal Adelaide Hospital.

May 2, 1943: Papers by medical officers on active service as follows: Major J. R. Cornish, "Dysentery"; Major S. E. Holder, "Scrub Typhus"; Colonel F. H. Beare, "Dengue Fever"; Professor E. Weston Hurst, "Arthritis in Northern Australia".

The Council is indebted to the military authorities for allowing medical officers to deliver papers at a meeting of the Branch. The subjects dealt with were of particular interest at the present time and this was borne out by the satisfactory attendance at the meeting. The Council desires to express its appreciation to those who were responsible for such a successful meeting.

Membership.

The membership of the Branch is now 456, an increase of 28 on the previous year. The number of new members elected was 35, the balance representing deaths and transfers in and out. It is with deep regret that the Council records the deaths of L. O. Betts, G. E. Jose, E. W. Morris, B. F. Moore, S. L. Seymour, C. Tanko, R. B. Taylor. Dr. Morris was President of the Branch on two occasions.

Representation on Boards et cetera.

Medical Board of South Australia, H. H. E. Russell; Dental Board of South Australia, J. W. Close; Nurses' Registration Board of South Australia, L. A. Wilson; Metropolitan Infectious Diseases Hospital Board, H. H. E. Russell, G. R. West; Australian Aerial Medical Services Council, A. F. Stokes; Executive Council Mothers' and Babies' Health Association, D. G. McKay; State Medical Coordination Committee, M. Erichsen; Central Council of the Association, Isaac Jones; Federal Council of the British Medical Association in Australia, Sir Henry Newland, A. F. Stokes; Federal Council Contract Practice Committee, R. John Verco; National Fitness Council, C. C. Jungfer; Saint John's Ambulance Association, A. F. Stokes. The Council desires to express to these representatives its appreciation of their services on behalf of the Branch during the year.

Sections.

Owing to the absence of so many members on active service, meetings of sections have been practically suspended during the year.

Lodge Practice.

In view of the likelihood of the Federal Government introducing some form of national medical service it has been thought advisable to finalize the Federal Common Form of Agreement, and the Federal Council is proceeding to complete the Agreement which will be submitted to the Branches when finality has been reached. Rates of fees and conditions under which doctors carry on lodge practice remain the same as last year. Through the medium of monthly circulars emphasis has been given to the arrangement made with the lodges regarding members on active service.

ATTENDANCE AT COUNCIL AND SUBCOMMITTEE MEETINGS.

	Council.	Scientific.	Contract Practice.	Parliamentary Bills.	Library.	Ethical.
P. T. S. Cherry	12	—	2	—	—	—
D. R. W. Cowan	12	1	4	3	—	—
J. S. Covernton	11	—	2	—	—	—
C. F. Drew	13	—	5	—	—	2
M. Erichsen	10	—	2	—	—	2
E. F. Gartrell	4	—	—	1	—	2
J. L. Hayward	1	—	—	—	—	1
H. M. Jay	13	1	6	1	1	2
J. C. Mayo	13	1	—	—	1	—
H. S. Newland	12	—	—	3	2	—
H. Powell	10	—	6	—	—	2
E. A. H. Russell	13	—	5	1	—	2
A. F. Stokes	12	—	7	3	—	2
R. J. deN. Souter	12	—	—	—	—	—
R. John Verco	11	1	7	—	1	2

National Health Insurance.

Notwithstanding the promise given to the Federal Council by the Federal Minister of Health (the Honourable E. J. Holloway) that no major scheme of nationalized medical services would be introduced while so many medical men are serving with the forces, Sir Henry Newland, as President of the Federal Council, and in the absence of Dr. Newman Morris, Federal Council representative on the National Health and Medical Research Council, was invited to attend a meeting of the Research Council on November 23 last, at which consideration was to be given whether the whole or any portion of the scheme of the National Health and Medical Research Council for a nationalized salaried medical service should be introduced during the war.

Sir Henry Newland, in view of the promise of the Minister of Health, declined to attend the meeting, and on behalf of the profession in Australia protested against the introduction of a salaried or other medical service without the fullest consultation with the profession, and whilst so many members were absent on full-time active service, as they would then be debarred, not only from expressing their views on such a service, but also from applying for posts in it should they desire to do so.

The Federal Government has appointed a Parliamentary Joint Committee on Social Security to inquire into and make recommendations to the Government in regard to medical services, and the committee has taken evidence in the several States. Your Council appointed a special committee to select members of the Branch and invite them to place their views before the committee, and the following were selected: Dr. R. John Verco and Dr. P. T. S. Cherry from the metropolitan area, and Dr. C. T. Piper (Port Lincoln), Dr. J. Riddell (Kapunda) and Dr. D. M. Steele (Burra) from the country. The evidence given by these members will, no doubt, appear in THE MEDICAL JOURNAL OF AUSTRALIA in due course, but it should be clearly understood that the views expressed by these members are not necessarily those of the Branch.

At the last meeting of the Federal Council a resolution was passed that the Council is completely opposed to any drastic alteration in the form of medical service to the community during the war and for one year afterwards. Also, that having ascertained the views of the medical profession in Australia, the Council is opposed to a nationalized salaried medical service with consequent abolition of medical private practice. The scheme of the Council for a general medical service for Australia has been recast, and details of the amendments adopted are given in THE MEDICAL JOURNAL OF AUSTRALIA, January 4, 1943, page 377, and certain principles which it is considered should govern this service have been set out. The Federal Council feels that a revolution in medical practice is undesirable and unnecessary for Australia, but improvements are obvious, as expressed in the policy drawn up and referred to above, and this opinion is supported by evidence gleaned from convocations of members in the several States. The Federal Council is the body to express the views of the profession, and is supported by the opinions of the profession in the States. It is very important that this should be clearly understood.

Your Council feels that if the sense of justice of the profession in Australia is to be outraged by the introduction of methods by which medical services are to be implemented by a salaried or other form of service whilst so many of its members are absent serving their King and country in the present national crisis, the best interests of the community will not be served, and sincerely hopes that the Government will honour the promise given. It should be recognized that to implement any medical service a willing and contented profession is essential, and any revolutionary changes are not likely to be a success.

Honours to Members.

The Council tenders its congratulations to Dr. T. G. Wilson, C.M.G., on the honour conferred on him (reference to this, owing to an oversight, was omitted from the previous report), also to Dr. B. S. Hanson, D.S.O., and Dr. P. C. R. Goode, M.C.

Domestic Staff for Private Hospitals.

The Council has had under consideration the shortage of domestic staff for private hospitals, and wrote to the Deputy-General of Manpower, asking, if possible, in the allocation of workers some provision should be made to relieve the present shortage of domestic help in private hospitals. A reply has been received from the Deputy-General advising that he realized the extreme urgency of the need of securing female hospital employees and steps would be taken to relieve the position to some extent if possible.

Venereal Disease.

The Council was requested by the Government to make suggestions which would provide more effective means both for the control and prevention of venereal disease. A special subcommittee was appointed to inquire into the matter and report to the Council. The committee coopted several members with considerable experience in the treatment of the disease and information was obtained from the other States. After an exhaustive inquiry a report was submitted to the Council and adopted. The recommendations made were forwarded to the Government, and appeared in the Press. Following the publication of the recommendations representatives of the Adelaide Board of Health met representatives of the Council in conference and discussed the report, with special reference to compulsory notification. At a subsequent meeting of the Council a report on the conference was submitted, and the report previously made was reaffirmed.

Rehabilitation of Service Medical Officers after the War.

A recommendation was forwarded by the Council to the Federal Council requesting that the question of the rehabilitation of service medical officers after the war should be considered at the next meeting. At a meeting of the Federal Council held on March 15, 1943, it was resolved that it should be a recommendation to the chairman of the Central Medical Coordination Committee that the Central and State Medical Coordination Committees should form the necessary basis of the committees necessary for the rehabilitation of medical men, and also that to this committee should be added representative medical men of the armed forces and of civilian medical services under forty-five years of age. The Minister of Repatriation has advised the Federal Council that a Parliamentary Select Committee has been appointed to go into this matter.

Medical Service to Members of the Allied Works Council.

The Federal Council has had under consideration for some time an agreement with the Allied Works Council for medical treatment to members of the Works Council. Although at the present time this matter does not concern South Australia to any extent, it is felt that with the extension of the works of the Allied Works Council it was very probable that in the future the conditions laid down regarding medical treatment to their employees would apply here. Upon submission of a proposed agreement, your Council strongly protested against the proposed rate of pay and recommended that rates of mileage should not be less than those set out in the proposed Federal Common Form of Agreement. The Federal Council resolved that all payment for medical services rendered to employees of the Allied Works Council be at the rates laid down in the Emergency Medical Service schedule.

Transport of Expectant Mothers.

Owing to the difficulty of obtaining taxi cabs and other means of transport, the question of the transport of expectant mothers to hospitals was referred to the Chairman of the State Liquid Fuel Control Board by representatives of the Council. As a result the Director of Emergency Road Transport has issued an order that taxi firms must maintain a day and night service for hospital and maternity cases. The order specified that all such cases must be treated as Number 1 Priority and that failure to observe the order will render taxi firms liable to prosecution under National Security Regulations.

Salary Limit for Admission to Queen's Home.

At the request of the State Medical Coordination Committee the Council has agreed to the suggestion that the income limit for admission of patients to Queen's Home should be left largely in abeyance at present, and that such suspension of income limit qualification be for the duration of the war only.

Medical Service to Widows and Children Including Step-Children of Deceased Members of the Armed Forces and Widowed Mothers of Deceased Unmarried Members of the Armed Forces.

An agreement made between the Federal Council and the Repatriation Commission has been approved and now awaits official ratification. It is understood that when this has been received the agreement will be published in THE MEDICAL JOURNAL OF AUSTRALIA for the information of members.

Immunization against Diphtheria.

Following consideration of the question of immunization against diphtheria, the Council has forwarded a recommendation to the Federal Council stating that in the opinion of the Council the death rate from diphtheria in Australia is too high, and considers that steps should be taken to make immunization against diphtheria compulsory, and suggesting that the Federal Council should bring the matter before the National Health and Medical Research Council at its next meeting through its representative on the Research Council.

Witness Fees to Medical Practitioners.

After continued endeavours by the Council to bring about a more satisfactory arrangement in regard to witness fees paid to medical practitioners, advice has now been received from the Attorney-General that amending regulation has been gazetted which will have the effect of removing the restriction whereby medical practitioners have been paid a lesser amount than £1 1s. for attending court.

Closing of Chemists' Shops at Six O'Clock.

The Council was approached by a number of chemists and assistants and asked for its views on the proposed closing of chemists' shops at 6 o'clock. A reply was sent to the effect that the Council is of the opinion that under existing conditions such a step is inopportune and inadvisable.

The year has been an exceedingly busy one, and numerous other matters were dealt with, the above report being a brief summary only of some of the activities of the Council. The war has created much extra work, and in addition to the attendances of members of the Council recorded on page one of the report, many other meetings have been held by special committees, which has involved much time, but this has been given willingly in every effort to enable the fullest consideration to be given to the matters dealt with.

In this the fourth year of war we are proud of the part which the medical profession has played in the defence forces at home and abroad. The Council takes this opportunity to record its appreciation and admiration of those of our association who have added a fresh lustre to the already great record of service by members of the Branch in the defence forces of Australia at various times and places. To those who experience sickness or captivity the Council offers its sympathy.

With great regret and deep sympathy for their relatives the Council records the deaths of Dr. G. E. Jose and Dr. S. L. Seymour whilst on active service. They shall not be forgotten.

The Council takes this opportunity to emphasize our appreciation of the energetic and courteous activities of the Lay Secretary on behalf of the Branch and its members. He has had an exceptionally busy year with considerable curtailment of clerical assistance on account of circumstances over which we had no control.

(Signed) R. JOHN VERCO, President.

Financial Statements.

The financial statements were received and adopted on the motion of Dr. P. T. S. Cherry, seconded by Dr. F. St. J. Poole. The financial statements are published herewith.

Election of Office-Bearers.

The President announced that the following office-bearers had been elected for the ensuing twelve months:

President: Dr. E. A. H. Russell.

Vice-President: Dr. H. Powell.

Honorary Treasurer: Dr. P. T. S. Cherry.

Honorary Medical Secretary: Dr. W. J. Betts.

Members of Council: Dr. K. S. Hetzel, Dr. H. M. Jay, Dr. F. St. J. Poole, Dr. L. G. Tassie (country member).

Messrs. Muecke, Pickering and Mitton were appointed auditors.

Induction of President.

Dr. R. J. Verco introduced Dr. E. A. H. Russell as the President for the coming year and vacated the chair in his favour.

Retiring President's Address.

Dr. R. J. Verco then delivered his address (see page 373).

Dr. H. M. Jay, in moving a vote of thanks to the President, congratulated him on the way he had dealt with the matter. The address gave very valuable information on a question which was prominently before them at the present moment, and he concurred in the views expressed by Dr. Verco. He had gone into the matter very fully and they were indebted to him.

Income and Expenditure Account for Year ended December 31, 1942.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To British Medical Association, London	535 10 0		By City Subscriptions	1,285 1 6	
„ THE MEDICAL JOURNAL OF AUSTRALIA, Sydney	351 5 0		„ Country Subscriptions	481 15 6	
		886 15 0	„ Accrued Subscriptions	44 10 0	
					1,811 7 0
„ Library Subscriptions		78 10 0	„ Interest		11 11 9
„ Federal Council Capitation Fee		123 0 0	„ Medical Certificate Books		17 5
„ Postages and Telegrams		59 0 10	„ Balance		104 15 6
„ Stationery and Printing		44 17 8			
„ Telephone		31 0 0			
„ Rent		49 8 0			
„ Salaries		588 10 0			
„ Depreciation		9 12 0			
„ General Expenses		57 18 2			
		£1,928 11 8			£1,928 11 8

Library Fund Account, December 31, 1942.

	£ s. d.		£ s. d.
To Adelaide University	150 0 0	By Balance brought down, December 31, 1941	254 9 2
„ Depreciation	5 15 0	„ Interest	6 3 1
„ Balance	183 7 3	„ Subscriptions	78 10 0
	£339 2 3		£339 2 3

General Fund Account.

	£ s. d.		£ s. d.
To Expenses, 1941	20 0 0	By Balance brought down, December 31, 1941	3,054 11 10
„ Income and Expenditure Account	104 15 6		
„ Balance	2,929 16 4		
	£3,054 11 10		£3,054 11 10

Balance Sheet as at December 31, 1942.

LIABILITIES.	£ s. d.	£ s. d.
To British Medical Association, London—		
Paid Subscriptions	29 6 6	
Unpaid Subscriptions	14 0 6	
		43 7 0
„ THE MEDICAL JOURNAL OF AUSTRALIA—		
Paid Subscriptions	17 16 3	
Unpaid Subscriptions	8 10 0	
		26 6 3
„ Library Fund		182 7 3
„ Subscriptions Paid in Advance		9 12 0
„ Sundry Creditors		119 3 11
„ National Health Insurance Contribution Fund		341 13 1
„ British Medical Hall Co. Ltd. Dividend Account		175 0 0
„ Lister Oration Fund		47 11 0
„ National Bank of Australasia, Ltd.		23 7 9
„ General Fund		2,929 16 4
		£3,899 5 7

ASSETS.	£ s. d.	£ s. d.
By Plant and Fittings	64 12 0	
Less Depreciation	6 12 0	
		58 0 0
„ British Medical Hall Co. Ltd. Share Account	2,540 0 0	
„ British Medical Hall Co. Ltd. Current Account	215 12 6	
		2,755 12 6
„ Library Account—		
Delineascope	15 0 0	
Projector	22 0 0	
	37 0 0	
Less Depreciation	5 15 0	
		31 5 0
„ Savings Bank Library Account		257 16 3
„ Lister Medals and Dies	18 0 0	
Less Depreciation	3 0 0	
		15 0 0
„ Subscriptions Owing		178 16 7
„ Lister Fund Savings Bank Account		47 11 0
„ Stocks—		
Hospital Forms	15 7	
Stationery	40 0 0	
Medical Certificate Books	1 14 6	
		42 10 1
„ Sundry Debtors		51 1 1
„ National Health Insurance Contribution Fund—		
Savings Bank of South Australia	31 18 1	
Commonwealth War Loan	300 0 0	
		331 18 1
„ Cash—		
Commonwealth Savings Bank	62 10 11	
State Savings Bank	61 13 11	
In Hand	5 10 2	
		129 15 0
		£3,899 5 7

WALTER C. DOBBIE, Secretary. PERCIVAL T. S. CHERRY, Honorary Treasurer

We hereby report:

(1) That we have examined the Books and Accounts of the South Australian Branch of the British Medical Association, Incorporated, for the year ended December 31, 1942.

(2) That we have received all the information and explanations we have required.

(3) That in our opinion the above balance sheet is properly drawn up so as to exhibit a true and correct view of the affairs of the Branch as at December 31, 1942, according to the best of our information, the explanations given us, and as shown by the books produced.

Adelaide,
May 22, 1943.

MUECKE, PICKERING & MITTON,
Chartered Accountants (Australia), Auditors.

Dr. J. C. Mayo endorsed the remarks of Dr. Jay, and in doing so marvelled that Dr. Verco, with such a busy practice, and in spite of illness that had overtaken him during the year, could find time to go so thoroughly into the matter that he dealt with. He felt sure that his views would find favour with the majority of members.

Dr. Verco thanked members for the appreciation shown to his remarks. On retiring from the office of President, he desired to express thanks to the Council and the Lay Secretary for their cooperation and loyalty during his term of office.

Correspondence.

MEDICAL MUSEUMS.

SIR: Your leading article (THE MEDICAL JOURNAL OF AUSTRALIA, January 16, 1943) urging the elaboration of medical museums in Australia is timely and the suggestions therein should not be allowed to lapse. During a brief trip in the United States of America in 1939, I was very struck by the beautiful museums at many of the teaching centres and also by the popularization of scientific knowledge by the excellent public museums in the larger cities. At the New York "World Fair" the General Motors exhibit was the best patronized, but next to it in popularity was the exhibit dealing with public health and medicine. The technique of conveying facts briefly and vividly by means of well-lit, coloured photographs, graphs, diagrams and models had been highly developed so that each exhibit was very instructive even to doctors. The contrast with the museums of thirty years ago is so striking that one feels that some more attractive titles might be found for these buildings.

Once established, exhibits can be steadily built up and improved; without a special building, valuable specimens are liable to be lost and enthusiasm evaporates.

Expense is, of course, the obvious difficulty, but this is simply a question of apportioning national expenditure to the greatest advantage. Any nation which claims to be cultured and progressive must have really good museums, and a tiny fraction of the wealth spent on luxuries such as alcohol, tobacco, cosmetics and racing would keep them in affluence. In Australia, much more should be done by doctors to popularize medical knowledge, but architects and artists must lend a hand and the environment must be colourful, airy, well lit and cheerful.

Yours, etc.,
CHARLES SUTHERLAND.

Abroad,
August 30, 1943.

EXTRACTION OF CATARACT IN ITS CAPSULE (TOTAL EXTRACTION).

SIR: It may add further interest to the already interesting article by Dr. R. A. de Castro Basto (THE MEDICAL JOURNAL OF AUSTRALIA, October 16, 1943, page 314) to record the results obtained in forty cataract extractions by the extra-capsular method. To facilitate comparison, Dr. de Castro Basto's figures are included, in parentheses.

$^6/_5$ vision (2), 3; $^6/_6$ vision (17), 6; $^6/_9$ vision (3), 17; $^6/_{12}$ vision (6), 3; $^6/_{12}$ vision to $^6/_{24}$ (4), 7; $^6/_{24}$ vision or less (8), 4; $^6/_9$ vision and better (22), 26; $^6/_{12}$ vision and better (28), 29. Complications: vitreous prolapse (10), nil; iris prolapse (2), 1; intraocular hæmorrhage (1), nil; iritis (2), 1.

Of the "$^{6}/_{24}$ or less" patients:

One, a high myope, got $^{6}/_{12}$, but 18 months later suffered detachment of the retina.

One was a chronic glaucoma, trephined in both eyes prior to extraction. Vision $^{1}/_{60}$.

Two got acute glaucoma some time after operation. One saved $^{6}/_{60}$, the other lost her eye.

At least one needling was required in all but thirteen of the cases.

Yours, etc.,

32, Collins Street, Melbourne, October 24, 1943.

ARCHIE S. ANDERSON.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 222, of October 14, 1943, and Number 230, of October 28, 1943.

ROYAL AUSTRALIAN AIR FORCE.

Citizen Air Force: Medical Branch.

The appointment of Flight Lieutenant J. E. Young (265914) is terminated with effect from 9th September, 1943, on medical grounds.

The probationary appointment of Flight Lieutenant R. L. Douglas (262724) is terminated with effect from 6th September, 1943.

Flight Lieutenant W. MacL. Davies (256407) is transferred from the Reserve with effect from 15th August, 1943.

The probationary appointments of the following Flight Lieutenants are confirmed: G. H. Cranswick (266821), D. D. Cunynghame (257084), G. B. Goswell (267238), M. Zilko (297402), S. L. Strange (287407).

Squadron Leader G. J. B. Baldwin (251657) is granted the acting rank of Wing Commander whilst occupying a Wing Commander post with effect from 1st September, 1943.

Flight Lieutenant J. R. F. England (283727) is granted the acting rank of Squadron Leader whilst occupying a Squadron Leader post with effect from 1st September, 1943.

Australian Medical Board Proceedings.

TASMANIA.

THE undermentioned have been registered as duly qualified medical practitioners:

Wishaw, Fred., M.B., B.S., 1943 (Univ. Sydney), Launceston General Hospital.

Williams, Ina Marie, M.B., B.S., 1943 (Univ. Melbourne), Royal Hobart Hospital.

Perrin, Enid Muriel, M.B., B.S., 1943 (Univ. Sydney), Royal Hobart Hospital.

Storey, John Samuel, M.B., B.S., 1943 (Univ. Sydney), Royal Hobart Hospital.

Hing, Sydney Robert, M.B., B.S., 1943 (Univ. Sydney), Royal Hobart Hospital.

Obituary.

ALEXANDER PENTLAND.

WE regret to announce the death of Dr. Alexander Pentland, which occurred on October 19, 1943, at Castle Crag, New South Wales.

ROBERT DICK.

WE regret to announce the death of Dr. Robert Dick, which occurred on October 31, 1943, at Bellevue Hill, New South Wales.

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Wiley, Thomas William, M.B., B.S., 1941 (Univ. Sydney), 12, Sutherland Road, Chatswood.

Diary for the Month.

Nov. 9.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
Nov. 9.—Tasmanian Branch, B.M.A.: Branch.
Nov. 12.—Queensland Branch, B.M.A.: Council.
Nov. 16.—New South Wales Branch, B.M.A.: Ethics Committee.
Nov. 17.—Western Australian Branch, B.M.A.: Branch.
Nov. 18.—New South Wales Branch, B.M.A.: Clinical Meeting.
Nov. 23.—New South Wales Branch, B.M.A.: Medical Politics Committee.
Nov. 24.—Victorian Branch, B.M.A.: Council.
Nov. 25.—New South Wales Branch, B.M.A.: Branch.
Nov. 26.—Queensland Branch, B.M.A.: Council.
DEC. 1.—Victorian Branch, B.M.A.: Branch.
DEC. 1.—Victorian Branch, B.M.A.: Council.
DEC. 1.—Western Australian Branch, B.M.A.: Council.
DEC. 2.—New South Wales Branch, B.M.A.: Special Groups Committee.
DEC. 2.—South Australian Branch, B.M.A.: Council.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility unless such a notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad *per annum* payable in advance.

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WESTERN AUSTRALIAN PUBLIC SERVICE.

Applications are invited, under the Public Service Act, for the position of Commissioner of Public Health, Western Australia.

In addition to all the usual public health functions, the department includes management of 25 hospitals and supervision of 60 other hospitals, the control of homes for the aged and infirm, and the direction of any State medical services.

Salary range: £1,180, £1,250, £1,300, plus basic wage adjustment which at 1st October, 1943, is £60.

Inquiries from and applications to the undersigned.

Applications close 22nd November, 1943, at Perth.

GEO. W. SIMPSON,
Public Service Commissioner.

TO LET.—FRONT SUITE TWO ROOMS, suit medical or dental profession, "BEANBAH", 235 Macquarie Street, Sydney. Rent £3 10s. per week. Apply Superintendent on premises or H. W. HORNING & CO. PTY. LTD Licensed Real Estate Agents, 15 Martin Place, Sydney. B 6227-8.

ROYAL HOSPITAL FOR WOMEN, PADDINGTON.
(Benevolent Society of New South Wales.)

Applications, on prescribed forms, are invited for Resident Medical Officers (2). Term, six months, commencing January 1, 1944. Salary at the rate of £150 p.a. Canvassing of directors is prohibited. Applications close November 30, 1943.

W. B. RODD,
Secretary.

General Offices,
Thomas Street,
Sydney.

ROYAL ALEXANDRA HOSPITAL FOR CHILDREN.

Written applications, with copies of testimonials, are invited for the position of Honorary Clinical Assistant to the Dermatological Department.

Applicants are requested to send their applications to the hospital before noon, Tuesday, November 16, 1943, and marked outside—"Application for the position of Honorary Clinical Assistant to the Dermatological Department".

Forms of application, which must be used, are obtainable at the general office of the hospital.

SYDNEY HOSPITAL.

TEMPORARY HONORARY RELIEVING ASSISTANT AURAL SURGEON.

Applications close November 16. Term 12 months or duration of war, whichever the lesser. Apply Medical Superintendent for particulars and application forms. Canvassing members of the Board will disqualify.

A. F. BURRETT,
Secretary.

THE WOMEN'S HOSPITAL, CROWN STREET.

Applications, with copies of testimonials, are invited for the position of Honorary Surgeon to the Out-Patients' Department.

By order of the Board.

R. M. JAMIESON,
Secretary.

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